THE MAGAZINE OF

Standards

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ASA

Our Cover

Courtesy Gibbs & Cox, Inc.

One of the world's great passenger liners, the United States Line's S.S. "United States," is an outstanding example of modern construction and reliance on electricity at sea. On her maiden voyage in 1952, the "United States" set a world speed record, with an average of 35.59 knots (about 41 mph) eastbound, and 34.51 knots westbound. Experience with use of electricity on ships bound, and 34.51 knots westbound. Since World War II use of electrical equipment in merchant and passenger ships has greatly increased. (See IEC recommendations, page 65)

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• **Efficiency,** time saving, more reliable performance — these are the results of standards. All are important for a healthy economy at all times—in prosperity or recession. But during prosperity it can often be noticed that more spectacular ways of serving production receive greater attention. Standards are not spectacular. They are the platform, or floor, on which efficient production stands. They are workaday. They are necessary but not eyecatching.

That is why companies sometimes put off organizing an effective standards department or standards activity during prosperous times. Everyone is too busy to be able to do the groundwork that is needed to set up the machinery for standards.

In a recession, however, standards can help a company wring every ounce of efficiency out of each company operation.

Mr Fulton Magill describes some of the ways his company is doing just this, in this issue. (See "How to Squeeze Out Extra Profits" page 70.)

Has your company taken any steps to make its standards work more effective in this present recession?

Do you have suggestions for more efficient application of standards?

Your contributions will be welcomed for publication in The Magazine of Standards.

The time for standards is all the time—but the problems of a recession may give you and American industry in general an opportunity to do something about standards that you would never have done in a time of expanding production.

• • •

1958 is the year of the American Standards Association's Fortieth Anniversary. In 1918, a small committee met under the chairmanship of Dr Comfort A. Adams to organize the American Engineering Standards Committee. His death, 40 years later, has saddened his friends in ASA (see page 85).

This Month's Standards Personality

ROBERT S. MOULTON is a familiar name to all who are concerned in any way with fire protection standards. Mr Moulton has been identified with the National Fire Protection Association for 38 years and has been its Technical Secretary since 1928.

Mr Moulton started life well equipped for his technical responsibilities with NFPA. He holds degrees from Amherst (B.S.); from the Massachusetts Institute of Technology (Mech Engrg and Naval Architecture, B.S.), and from Harvard (S.B.).

During and immediately after World War I, his training in Naval Architecture resulted in his assignment as Inspector of Naval Construction at the Navy Yards in Boston and in Charleston, South Carolina. After the war, he spent one year at the Merchant Shipbuilding Company in Bristol, Pa., before joining the National Fire Protection Association as assistant secretary in 1920.

Ten years later, his standing in fire protection circles was given special recognition. On request of the Government of Puerto Rico, he visited the island to advise on the fire hazards of oil storage and on public safety regulation in connection with the storage of oil.

In World War II, he served as Fire Protection Consultant to the War Production Board, Consultant to the Office of Scientific Research and Development, and Consultant to the War Department.

As Technical Secretary of the National Fire Protection Association, Mr Moulton supervises the work of some 75 technical committees of the Association. There are few, if any, men anywhere who have the broad technical knowledge of all phases of fire protection and fire prevention that he does.

Mr Moulton is the editor of the annual National Fire Codes volumes issued by the National Fire Protection Association. These volumes presently are six in number and run to 4400 pages. They cover some 185 technical standards.

Mr Moulton is editor of the Association's *Quarterly* magazine and is editor-in-chief of the *Handbook of Fire Protection* which is the most widely used reference volume in the field of fire protection in the world. He is long-time secretary of the NFPA Committee on Safety to Life which produces the Building Exits Code.

Mr Moulton helped to organize the Society of Fire Protection Engineers in 1950 and has been its secretary since its organization. This flourishing new technical society already has more than 1,000 members.

He has been a member of the Construction Standards Board of the American Standards Association since its organization as the Building Code Correlating Committee in 1935, and he is an alternate member of ASA's Standards Council.

Mr Moulton's principal interest, other than his work at NFPA, has been his family—his wife, three sons, and a daughter.

Photo by Nixon

The world's third largest passenger ship, the U. S. Lines' S.S. "United States," is shown on her acceptance trial run June 9, 1952. The "United States" is 990 feet long, measures 53,329 tons.

Luxury comparable to finest hotels ashore makes ocean travel a pleasure in today's modern liners. Sitting room and portion of bedroom in this S.S. "United States" suite shows use of electric fans, lamps, telephone. Note wall plugs.

. . . in contrast, Coast Guard cutter, just off patrol in North Atlantic, arrives in Boston heavily coated with ice. Subzero temperatures and salt water spray make this a common occurrence in the North Atlantic. IEC recommendations are designed to provide safe use of electricity under all conditions.

Official Coast Guard Photo

Recommendations For Electrical Installations in Ships

by **Arthur R. Gatewood**

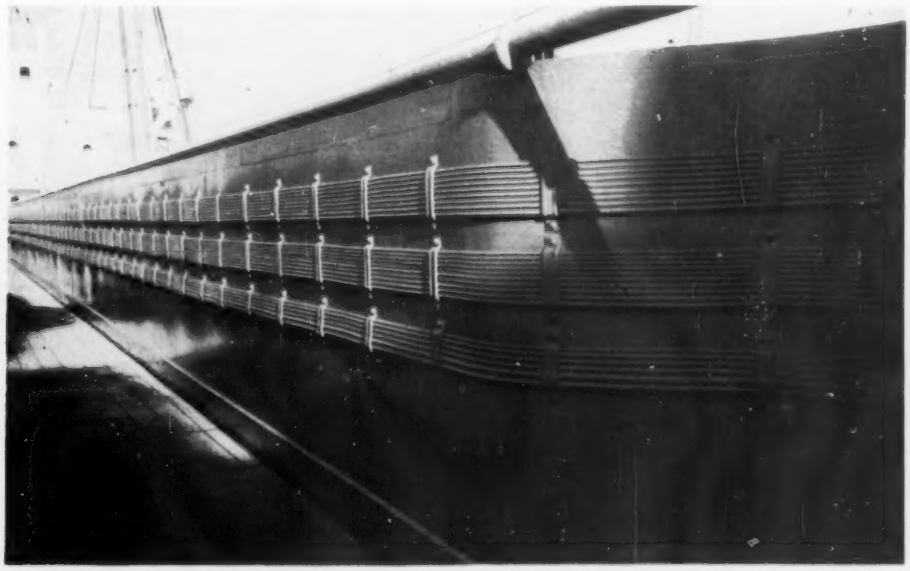
Mr Gatewood, American Bureau of Shipping, New York, presented the paper of which this is a somewhat shortened version at the General Meeting of the American Institute of Electrical Engineers, February 2-7. Mr Gatewood is the Technical Advisor of the United States National Committee, International Electrotechnical Commission, on the work of IEC Technical Committee 18. He is a Fellow of the AIEE.

IN May 1957 at Rapallo, Italy, there became available for the first time a comprehensive group of recommendations for electrical installations in ships which had the international support of the leading marine electrical engineers of 18 maritime nations. One has only to reflect for a moment on the complexity of the electrical installation in the present-day ocean liner, for instance, to realize the difficulties which had to be overcome in order to reach such universal agreement. This is not to say, of course, that the document is final and complete. We are dealing with one of the most dynamic of the sciences and it is inevitable that keeping the document abreast of new developments will make the work of IEC Technical Committee 18 a continuing one.

It was in June 1935 that delegates from 12 nations with interests in marine applications met at The Hague under the chairmanship of Professor Thierens of Delft University. They decided that an international set of recommendations relating to electrical installations in ships would be an advantage to the many interests involved. They also outlined the order of importance of the subjects to be dealt with as (1) safety, (2) reliability, (3) simplicity, and (4) ease of maintenance.

Eight subcommittees were appointed and a further meeting was held in London the following year. Some progress had been made in preparing the various drafts but this work was interrupted by the Second World War.

American participation in this project was through the United States National Committee of the IEC.



These cables on fore and aft walkway of S.S. "Atlantic Santos" are mineral insulated. Cable construction and installation are included in new IEC safety rules.
(Photo—Courtesy Atlantic Refining Co.)

H. R. Summerhayes of the General Electric Company represented the United States at the first meeting in The Hague.

The work of TC 18 was reactivated after the war with G. O. Watson[1] of the United Kingdom as chairman. At the request of the U. S. National Committee, the AIEE Marine Transportation Committee nominated R. A. Beekman as the American delegate. No meetings were held, however, until July 1948.

In the meantime, preparations were being made by the maritime nations for an international conference on Safety of Life at Sea which was to be held in London in the Spring of 1948. These conferences are held at the State Department level but the advisors are drawn from all of the various marine activities. The prior Safety of Life at Sea Conference had been held in 1929 but the Convention which resulted from that conference did not contain any reference to electrical installations.

By the time the war was over the size of the electrical plant on the average ship had increased enormously and even on steamships it had become common practice to use electric motor drives for a number of the vital auxiliaries. In addition, wartime experience had also demonstrated the value of having an emergency electric plant on board. Accordingly, the Shipbuilders Council of America organized a task group of marine electrical engineers under the direction of F. H. Harvey, Jr and W. N. Zippler to prepare proposals regarding electrical installations for consideration at the 1948 conference.

Unfortunately, at the last minute neither Mr Harvey nor Mr Zippler was able to attend the conference and the author was designated as the spokesman for the United States on electrical matters as well as for the other engineering proposals which were to be considered at the conference by the Subcommittee on Engineering.

It developed that only a few countries had submitted proposals regarding electrical installations and since the documents were rather long and detailed, there was considerable opposition on the part of some of the other delegations to inclusion on the agenda at all. A speech made at the plenary session by H. G. Smith, president of the Shipbuilders Council of America, pointed out that there had been a number of disastrous electrical fires on passenger ships since the 1929 conference and that in view of the size of the electrical installation on present day ships, it seemed an anachronism to permit the use of kerosene lanterns for emergency lighting on first class passenger liners. It was finally agreed that a considerably briefed-down version of the American proposal would be placed on the agenda.

In due course this agenda item came up for discussion by the Subcommittee on Engineering. It is noteworthy that at this level there was no opposition to the inclusion of basic electrical safety requirements as well as the requirement that an emergency source of electrical power should be provided on passenger ships. The discussions revolved mainly around the type and amount of coverage that was appropriate for an international convention. It was at this point that Mr. Watson, speaking for the British delegation, suggested that we should only fill in the broad basic outlines for safety and that the more detailed requirements, such as those which had been originally proposed by the American delegation, could more appropriately be worked into an international document of recommended practices sponsored by the International Electrotechnical Commission. This proposal was strongly supported by the French delegate, Mr Audige, and was accepted by the Engineering Subcommittee.

The Convention as finally ratified provided a general statement that electrical installations in passenger ships shall be such that

(1) services essential for safety will be maintained under various emergency conditions; and

(2) the safety of passengers, crew, and ship from electrical hazards will be assured.

It is also stipulated that, when electrical power is the only means for maintaining auxiliary services indispensable for the propulsion and safety of the ship, at least two generators are to be provided, and that the power of the sets shall be such that it will be possible to ensure the functioning of these indispensable services in the event that any one of the generators is stopped.

As previously stated, an emergency source of electrical power is required which will come into operation automatically in the event of failure of the main supply and which will function efficiently when the ship is inclined 22½ degrees or when the trim of the ship is 10 degrees from an even keel, or when both conditions exist. It is also stipulated that electrically operated steering gears are to be served by two sets of feeder cables from the main switchboard, that these feeders are to be separated throughout their length as widely as practicable, and that short circuit protection only is to be provided for these circuits and motors.

The precautions for safety of passengers and crew concern grounding of exposed metal parts to prevent injury in ordinary handling, and the use of deadfront switchboards when the voltage to ground exceeds 250 volts for direct-current installations or 150 volts for alternating-current installations. Guarding the sides and backs of such switchboards and the use of nonconducting mats or gratings are also required.

The only other electrical requirements in the 1948 convention concern precautions against fire. Here the hull return for power, heat, and light distribution is prohibited on passenger ships; the distribution system has to be arranged so that a fire in any main fire zone will not interfere with essential services in any other fire zone. All metal-sheathed cables are to be grounded or where there is no metal sheath special precautions are to be required by the Administration who may

[1]G. O. Watson, Lloyds' Register of Shipping, United Kingdom, is chairman of IEC/TC 18. National committees of 16 countries voted in favor of Recommendation 92: Austria, Belgium, Denmark, Finland, France, German Federal Republic, Italy, Netherlands, Norway, Poland, Sweden, Union of South Africa, USSR, United Kingdom, USA, Yugoslavia.

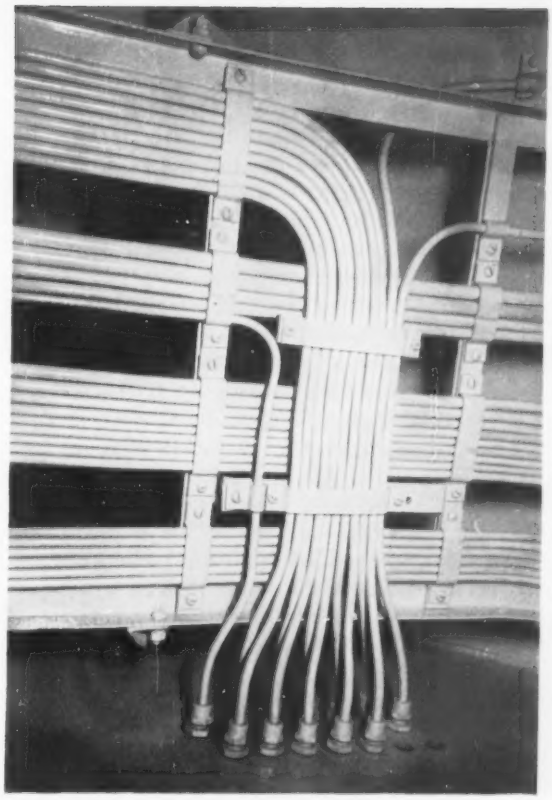
require the use of metal-sheathed cables in certain locations. In all except low voltage communication, circuit connections are to be made in boxes or wiring devices which will prevent the spread of fire from the box or device. Lighting fittings have to be arranged to prevent temperature rises injurious to the wiring and to prevent the surrounding structure from becoming excessively hot. Wiring has to be supported in such a manner as to avoid chafing or other injury and all circuits except steering gear circuits are to be protected against overload.

The final item under the electrical section provides for ventilation of storage battery compartments and requires that only explosion-proof fittings be used in such spaces.

There are also several other clauses which will affect electrical installations when electricity is used to operate them, such as the requirements that all ventilation systems must be capable of being stopped from either of two control stations, that there must be two sources of power for automatic sprinkler systems, that a submersible bilge pump must be provided, and restrictions regarding the use of electric radiators.

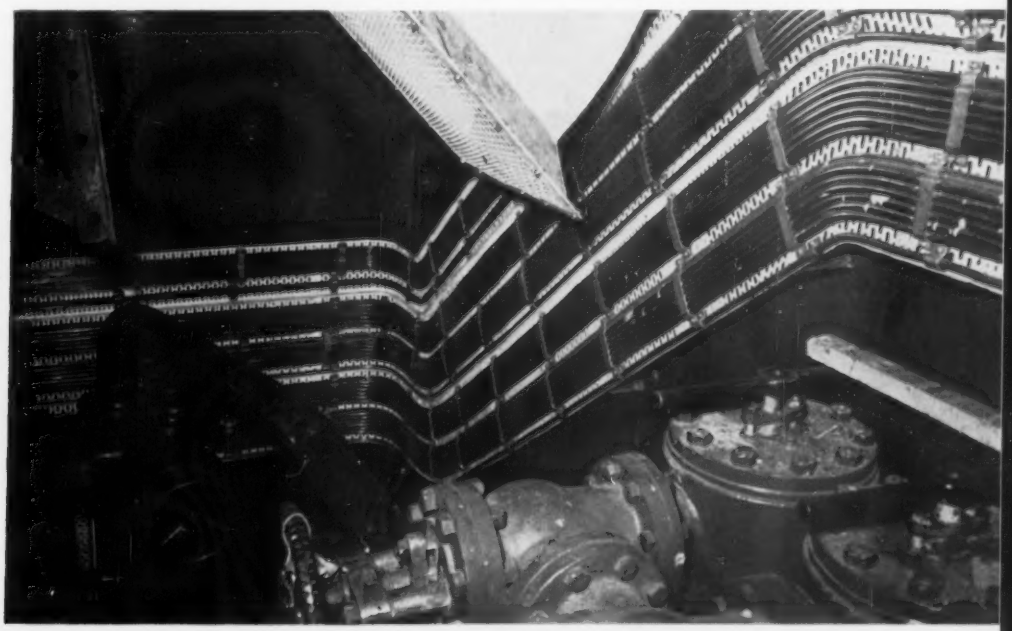
It will be noted that, while four broad categories are mentioned, only the minimum amount of basic detail has been given to indicate the framework within which the various national administering authorities are required to work. It will be readily seen, therefore, that when attempting to implement the convention each national authority is immediately faced with the task of considering a multitude of detailed proposals as regards the actual installation on each ship.

It should be pointed out that in putting the Safety of Life at Sea Convention into effect, each country



Above—IEC recommendations are attempting to unify many different standards that have governed installation of marine electric cables. This picture shows part of the mineral-insulated electric cable installation on the S.S. "Atlantic Rio."

Below—Cableway in the "Atlantic Rio's" engine room. Increasing use of electricity on ships makes new safety recommendations especially important.



Photos—Courtesy Atlantic Refining Co.

which has ratified the convention undertakes to provide each of its ships with a "Safety Certificate" which certifies that all of the requirements of the convention have been met. This certificate is accepted by all of the other signatory nations and permits the ships to use each other's ports and carry each other's nationals as passengers, subject only to control inspection if deemed necessary. Since international shipping is a very large and highly competitive business, it will also be seen that if an international convention is to work at all, the implementation of its requirements must be carried out as uniformly as possible.

As a result of these considerations, the chairman of IEC/TC 18 arranged to have a meeting in London several weeks after the end of the Safety of Life at Sea Conference. It was attended by 18 delegates from eight countries and it is noteworthy that five of the major ship classification societies were represented. Germany, Japan, and the USSR also have classification societies but were not present at this meeting; the first two because peace treaties had not been signed with them at the time and the latter because they did not sign the Safety of Life at Sea Convenion. All three have since taken an active part in the work of IEC/TC 18 and all three voted in favor of the Recommendations included in Publication No. 92.

At the 1948 meeting of TC 18 in London most of the time was given over to a discussion of the form and coverage which the proposed document should take. A review was made of the documents which had been started prior to the war but it was obvious that they would not serve the purpose now intended by the Safety of Life at Sea Conference. It was pointed out by several of the major maritime countries who had no national ship classification societies that the IEC could only make recommendations, either to classification societies or to administrators. They also pointed out that all official rules applying to ships, even to non-classed ships, were actually based on the regulations of classification societies, which however differed considerably.

Since classification societies are unique to the marine industry it might be well to give a brief explanation of their organization and functions. For the most part classification societies are private, non-profit type organizations. Each promulgates its own rules or regulations covering the construction of hulls and machinery, the latter of course including the electrical installation. On the basis of compliance with its rules each society is prepared to issue certificates of classification when requested to do so by owners or builders. Government recognition is granted to one or more of these societies in various degrees in different countries so that their actions can, in many cases, have the effect of being mandatory for enrolment under a particular flag. For instance, in some countries it is required that a ship be classed with the national society of that country; in others it may be required that a ship be classed with one of a number of societies recognized by the government. Many of the larger countries, which have comprehensive regulations and well organized inspection agencies of their own, do not require classification, but in the absence of any specific regulations of their own they lean largely on the rules of a classification society. As a case in point, the electrical regulations of the United States Coast Guard, to which all vessels of United States registry must conform, state that in the list of electrical plans required to be submitted:

> "those indicated by an asterisk cover the electrical items necessary for the approval of the installation by the American Bureau of Shipping for vessels classed by that organization. When prints bearing record of such approval by the American Bureau of Shipping are forwarded to the Coast Guard they will, in general, be accepted as satisfactory except insofar as the law or the regulations in this chapter contain requirements which are not covered by the American Bureau of Shipping."

It is understandable then that electrical engineers, by and large, will lean heavily on the rules of the classification societies in which they have confidence.

It was finally agreed that it was considered generally necessary for TC 18 to go into the questions covered by the existing regulations of classification societies and to endeavor to draw up general recommendations on all important points in their regulations. It was also agreed that details should, wherever possible, be avoided, but should such a recommendation be found desirable, it should be formulated in such a way that national agencies could make use of it without conflict with their national standards.

Ten subcommittees, each based on a national committee, were appointed to prepare draft recommendations based as far as practicable on existing rules or draft rules as issued or prepared by recognized national bodies, classification societies, and administrations.

Then began the long process of writing the drafts, circularizing them when they were completed to all of the other national committees for comments, and these comments were in turn also circularized until finally the parts were combined by a coordinating and editing committee into a first comprehensive draft comprising 25 chapters. This was the document under consideration at the golden jubilee assembly of IEC at Philadelphia in 1954.

At the start of the meetings in Philadelphia it was agreed that an item would not be recommended for publication by TC 18 unless it was in such a form that it could be unanimously supported by all of the delegations present. In making this proposal Professor Thierens promulgated what turned out to be a very astute philosophy for reaching sound and universally acceptable agreements. This philosophy is expressed in more formal language in the first two paragraphs of the introduction to Publication 92:

> "The operating conditions in ships sailing the seven seas as far as they affect electrical appliances are the same regardless of where the ship is built. Except for variations in quality, the materials used in the construction of electrical appliances are similar and are subject to the same natural laws. The characteristics

of electric circuits and the behavior of appliances are likewise predeterminable and follow the same fundamental laws irrespective of the country of origin. It is accordingly feasible to establish international standards to secure that degree of performance, reliability, and safety which are essential for the well-being of crews and passengers alike and for the safe carriage of valuable cargoes.

"It is for the fulfillment of these ends that the present recommendations have been formulated. Shipbuilders, electrical contractors, and manufacturers engaged in the building of ships for the international market are faced at present with several codes of rules and regulations with which to comply although as already stated the conditions of service are identical. It is recognized that apparatus manufactured in various countries will inevitably differ in appearance and conception but for the same duties similar apparatus and materials will necessarily have to meet the same service conditions. This code has therefore been drafted in the form of 'recommendations' thus allowing the fullest possible scope for the manufacturer to use his initiative in the design and development of his product and to use existing tools and patterns so far as they are suitable."

By the end of the week of meetings in Philadelphia it was found that adherence to these principles had resulted in a remarkably wide area of agreement and the editing committee was instructed to prepare a second comprehensive draft for circulation under the IEC six months' rule. Some of the more involved problems could not be satisfactorily resolved without causing considerable delay. These included the construction and current-carrying capacity of cables and the allowable temperature rises for rotating machines and rectifiers, but it was decided to continue work on the more controversial items for inclusion in a later edition.

In due course the second draft was circularized under the six months' rule and while all 16 countries voting were in favor of publication all but one submitted comments. Those comments which dealt with technical errors and inconsistencies were considered at the next plenary session of the committee which was held at The Hague in December 1956. These revisions were circularized under the two months' rule and the document was accepted unanimously for publication.

As stated previously, the recommendations have been divided into 25 chapters and two appendices, the latter covering the classification of insulating materials for electrical machines and the three standard methods of measuring temperatures. The 25 chapters not only cover most of the items included in the rules of the various classification societies but go even further, so in many respects the coverage is comparable to that included in AIEE Standard No. 45. In some parts, however, it was not possible to secure the necessary universal agreement on details so that the recommendations have been framed in more general terms in this first edition.

The material may actually be grouped into four general classifications and it has been proposed to rearrange future editions so that they may be published in four separate sections for the convenience of those having different spheres of interest. There are several chapters which deal with the contents of all the other parts, such as definitions, graphical symbols, general requirements for marine service as regards design, installation, and trials. There are separate chapters on standard d-c and a-c systems of supply, diversity factors, and abatement of radio interference. Then there are chapters dealing with cable construction and installation. Another group deals with the construction of switchboards, section boards, distribution boards, rotating machines both for propulsion and for ship service systems and also special precautions for installations on oil tankers. Finally there are several chapters dealing with such miscellaneous items as rectifiers, storage batteries, accessories, heating and cooking appliances, and lightning conductors.

As pointed out at the beginning of both chapters 10 and 11, there was not unanimous approval as regards recommendations for the construction, testing, current rating, and installation of cables. This was due primarily to the multiplicity of standards to which marine cables have been made in the past. Considerable progress has been achieved during the past few years in redrafting these two chapters and it is hoped that in the not too distant future they will be in a form which will not only be acceptable to all but will also serve as a useful and practicable guide for the future.

This, of course, is the purpose of the entire document but it is recognized that the uses for electricity on board ship continue to expand and that new developments in the art are continually taking place. If the document is to serve the intended purpose of international unification it will be necessary to keep it under constant review and revisions must be made promptly, otherwise it will fall into disuse because its recommendations have become obsolete.

Because of this consideration and the fact that the IEC can only make recommendations to administering authorities, the committee at its meetings in Rapallo in 1957 approved the following statement which is to be incorporated in the Foreword to the second edition:

"The present Recommendations are not to be regarded as a substitute for, or as additional Rules, to the Classification Rules and National Standards.

"Where a shipowner requests the observance of these Recommendations when ordering his vessel, he should not give this request the character of a stipulation.

"Where there are deviations, the Rules of the Classification Societies and the National Standards have preference over the Recommendations.

"In order to promote international unification, the IEC expresses the wish that all National Committees having as yet no national rules, when preparing such rules, should use the IEC Recommendations as the fundamental basis for these rules insofar as national conditions will permit."

It is our belief that a very important advance in assuring greater safety to life at sea has been achieved with the publication of these IEC Recommendations for Electrical Installations in Ships.

Copies of IEC Publication 92, Recommendations for Electrical Installations in Ships, can be obtained from the American Standards Association at $7.20 each.

Surfaces of bearings for a cutter head for a 4-inch jointer are here ground to tolerances within 3/10 of 1000 of an inch at Delta Power Tool Division of Rockwell Manufacturing Company. These tolerances must be held because precision bearings are later assembled to these bearing surfaces.

How to Squeeze Out Extra Profits

by **Fulton R. Magill**

STANDARDS can squeeze out extra profits from the materials and practices used in making a product. A judicious use of American Standards and standards engineering techniques pays off in a diversified and decentralized industry like Rockwell Manufacturing Company. Here the product mix includes Nordstrom Valves, Edward Valves, Republic Flow Meters, liquid and gas meters, regulators, pumps, taximeters, parking meters, instruments, lubricants, and the Delta, Walker-Turner, and Beaver Power Tools.

There are 21 Rockwell manufacturing plants in the United States, and there are also subsidiaries located in Canada and Germany. Products are sold and serviced throughout the world.

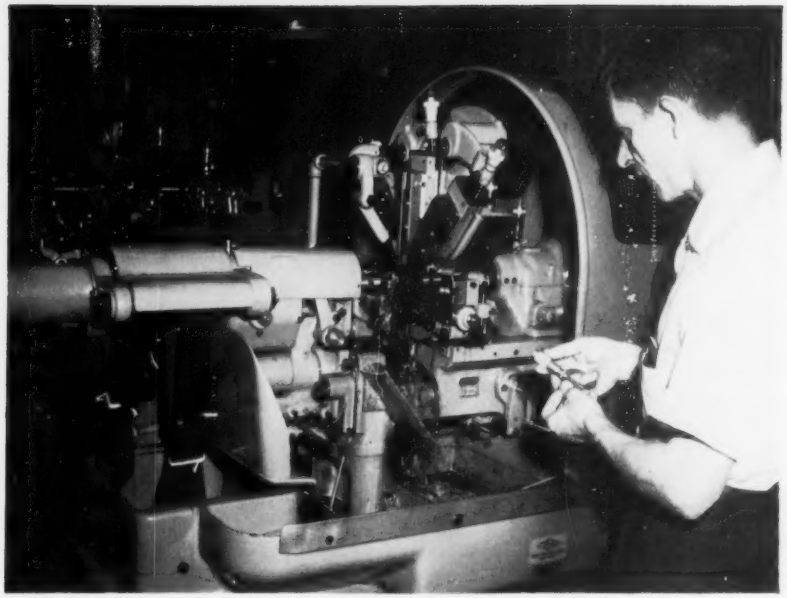
It is generally understood within the company that the company-wide standardization program is concerned with the company's products, what they are made of, and how they are made. It is assumed that the standards are for use on new products only and should not be applied to existing products.

With this concept, standardization becomes a sort of ouija board, forecasting the parts, materials, and engineering practices which will go into our new products. To a great extent, this is actually the case. Consider the standard for hex nuts, for example.

The company's parts lists show every standard commercial hex nut used by the divisions and subsidiaries; however, only some of them are rated as "standard" for Rockwell and recommended for general application on new designs. Why does the company make this selection when all the nuts conform to an American Standard? The reason is clear—because we do not want inventories filled with many items all doing the same job.

Think of the number of different ¼ in. hex nuts available for new designs if the power tool engineers should use suppliers' catalogs instead of the list of "standard" or preferred parts. There are 88 of them. That would mean a lot of bins in the stockrooms full of nuts doing a job that just one or two could do on new designs.

Mr Magill is manager of the Central Standards Department, Rockwell Manufacturing Company, a company member of the American Standards Association.



Foreman of the Automatic and Hobbing Departments checks dimensions of chain drive pinion just completed on automatic screw machine. This is at Rockwell's Instrument Division, Tulsa, Oklahoma.

Photos—Rockwell Manufacturing Co.

Recently, a new development in the standards program took place. Two divisions decided not to assume that nut standards were only for application to future products. The engineers took a further look at those which were already being used on existing products. From a list of 123 different types and sizes of special and commercial nuts, they selected only 54 as being actually needed.

Of the 54 kinds of nuts which were selected, only 27 types kept their original specifications. Twenty-seven types were changed to double chamfered nuts, and 17 types were changed to lower-priced commercial nuts.

This is impressive, but what does it mean aside from the normal savings in inventories, order writing, and similar problems? Records show that 1,581,008 nuts were used annually. As a result of the changes described, the cost was reduced for 1,140,420 of this number. Obviously, 72 percent of the nuts used each year had been costing too much.

Is the actual saving worthwhile? To determine the answer, consider that 703,320 nuts were changed to the double chamfered design at no extra cost and that industrial engineering claims a saving of over 60 percent in the time required to select and put them on the screws because there is no upside down to them. The savings at the rate $.30 per hundred would be $2,110.

Lower cost nuts were substituted in 542,370 instances. Some of those had been specials, and the average saving was over $.56 per hundred, or $3,037.

No time has been taken to make an estimate of the total saving from standardizing the nuts on existing products; however, the saving in the actual cost and assembling time alone is over $5,000.

It would take a lot of sales for earnings to equal these minimum basic savings—savings which will occur year after year as long as the products are manufactured.

Apparently, it *is* practical to apply the standards created for tomorrow's products to the products of today. This is considered one of the steps in the standardizing process. It is a qualitative analysis—sometimes called "value analysis"—and is done where the products are made. The Central Standards Department helps in the analysis by offering a few suggestions.

The Rockwell design standard for surface roughness and finish symbols is still another tool for cutting costs. It cuts the costs of finishes by controlling the finish. It costs money to make a surface smooth. If it is too smooth, it costs too much. If it is too rough, the product is no good and cannot be sold. This is one of the most valuable of the standards covering how a product is to be made.

This engineering standard could not be lifted bodily from the American Standard on surface finishes[1] any more than standard parts could be lifted from a supplier's catalog. Only the best features of the American Standard and of our own practices were selected and glorified as the Rockwell standard.

The use of standards is voluntary. Nobody is going to force anybody else to save money. Why should they? The Central Standards Department functions primarily as the coordinator and correlator to arrive at standards which are good for the company. Each general manager is responsible for using them to cut his costs.

Since it takes time to make good company standards, however, the Rockwell Manufacturing Company recommends the use of American Standards by the divisions to expedite future company standardizing efforts.

[1] American Standard B46.1-1955, Surface Roughness, Waviness, and Lay.

Fire extinguishers are just one of some 300,000 *products, submitted by* 8,000 *firms, that engineers at Underwriters' Laboratories have tested for safety. Once supported by insurance companies, UL has earned its own way since* 1917.

All Photos—Underwriters' Laboratories, Inc.

The Magic Label

by **Jack Hankins**

THE proof is in the label. It comes in many sizes, shapes, and colors, and you will find it on many kinds of appliances and equipment. Seeing it on what you buy, you may be certain that your purchase can be used as intended without likelihood of fire, shock or personal injury.

The label or marker appears in various forms, but there is one constant: always the words Underwriters' Laboratories, Inc, or the letters UL will appear on it.

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And what does this mean? It means that there is a non-profit organization, sponsored by an association of fire insurance companies, endeavoring "by scientific investigation, study, experiments, and tests, to determine the relation of various materials, devices, constructions, and methods to life, fire, and casualty hazards, and to ascertain, define, and publish standards, classifications, and specifications for materials, devices, constructions, and methods affecting such hazards, and other information tending to reduce and prevent loss of life and property from fire, crime, and casualty."

What this legal language means is that the Underwriters' Laboratories, through its tests, is striving to

***Underwriters' Laboratories** is a member-body of the American Standards Association. Its representatives serve on Standards Boards and on the Standards Council of ASA on the same basis as representatives of other member-bodies of ASA. This is due to its unique standing among laboratories as a non-profit organization with membership made up of 200 stock fire insurance companies and those individuals, firms, associations, or corporations elected by a majority vote of the Board of Trustees. The 200 stock fire insurance company members constitute the National Board of Fire Underwriters, which sponsors the Laboratories as a public service. Underwriters Laboratories is supported by fees charged for its services and no portion of its net earnings may be used for the benefit of any individual. It has no shareholders.*

Underwriters' Laboratories is probably the oldest organization of its kind in operation today. Testing laboratories patterned after it have been established in other countries, but so far as is known, each of these other organizations is supported, either in part or completely, by the government of the country in which it operates. Underwriters' Laboratories has freely shared its knowledge and experience with them.

Underwriters' Laboratories was recognized as qualified for membership and became a member of the American Standards Association (then the American Engineering Standards Committee) in 1920. It has been a member of ASA continuously since that time, first as one of the organizations that made up the Fire Protection Group and recently as an individual member-body.

Merwin Brandon, vice-president of the Laboratories, serves as its representative on the Standards Council of the ASA, with Homer B. Whittaker as his alternate.

make sure that only adequately safe products will reach the consumer. This typical testing scene will show how UL goes about its business:

At 207 East Ohio Street in Chicago is a large five-story building. In one of its laboratories, where there is a narrow, 25-foot steel tunnel lined with firebricks, a group of men are preparing for an experiment. The top of the tunnel has been lifted off and swung back, and along its length a piece of new composition board, previously conditioned to temperature and humidity, is fastened. The top is set back into place. Everything is set for the tests to begin.

"Ready," the man in charge says.

One man stands at the end of the tunnel, and the others post themselves before dials or at glass apertures. The first man lights a gas jet and a flame roars down the tunnel behind a 240-foot-per-minute draft of air. Dials are steadily watched as the experiment is studied.

Finally the jet is turned off, the top of the tunnel removed, and the composition board is found to be charred from end to end. It is examined, the men compare notes, confer, and shake their heads. The board had burned too rapidly and emitted heavy smoke. A house using such a board would not be safe, there would be too much smoke which would suffocate anyone caught inside. It is accordingly given a poor classification as a building material, and another sample of building board or plastic is placed in the tunnel for a test.

In an adjoining room, a steel-framed window stands before a vertical wall furnace, and flame curls against it for 45 minutes, reaching a temperature of 1,600 degrees F. But when the test comes to an end, the glass and metal are still intact. The frame is pulled away and then a stream of water from a fire hose is directed against it. Clouds of steam rise, the metal creaks, but when the water is stopped and the steam clears, the frame and the glass are still intact. A building equipped with such windows would permit little draft to feed a fire.

In other laboratories in this building, experiments are constantly being conducted on materials, gadgets, devices and products which are burned, twisted, dropped, fed voltages in excess of their capacity, battered with sledges; in a word, maltreated.

And to what purpose? So that consumers who buy the products tested may be certain that their lives will be considerably safer.

The engineers and technicians of the Underwriters' Laboratories test much of the output of our factories to determine the safety of each product. Their honored and respected label is their fingerprint, their certification that the product in question has been investigated and found to meet recognized standards for safety.

It was the modern world that brought the Underwriters' Laboratories into existence, for the new incandescent light caused Boston insurance interests to send Engineer William H. Merrill to Chicago's Columbian Exposition in 1893. Numerous fires had been breaking out at the Exposition grounds, and the use of electricity for lighting was suspected of being the cause. Riding horse-drawn firewagons to the fires, Merrill began his detective work.

At the same time, Chicago insurance interests had sent William C. Robinson to investigate automatic sprinkler systems. He and Merrill met, and in order to pool their efforts, they started a laboratory over the firehouse on Monroe Street, with $350 worth of equipment for carrying on their work.

It was not long, however, before they were investigating devices which their original mission had not called for. Merrill had noted the unreliability of automatic fire alarm systems and was soon tinkering with them. As acetylene gas was being used for illumination, and as ignorance of its danger was widespread, the tiny laboratory began working on this problem. Before long, so many devices were being brought to the laboratory that it had to be moved to larger quarters.

At the same time, a few others in the country were also working on the safety problems of the new age and reported their findings. With no one knowing a great deal about these new inventions, their uses, or even of testing methods, reports were often at variance. To centralize activities, the National Board of Fire Underwriters, an association of capital stock fire insurance companies, designated the small but busy Chicago laboratory as its official testing station. Thus, with William Merrill as president and William C. Robinson as vice-president, the Underwriters' Laboratories was founded in 1894.

Since then, the Underwriters' Laboratories has tested an ever-increasing flood of products, materials, and devices. Among them are such diverse items as baby incubators and bank vaults, motor-driven toothbrushes and fertilizers, window cleaners' belts and fumigants, lightning protection systems, and Christmas tree lights.

Fortunately, most electrical appliance manufacturers design their products to meet UL safety requirements, and many common household gadgets incorporate safety features which we take for granted. Electric irons are dropped repeatedly and stressed with voltages eight times their normal rate to see that they do not become a shock hazard. Electric cords are put into machines and twisted up to 3,000 times. Flatiron plugs are dropped. Radio receivers are tested to find out if dangerously high voltage is exposed.

Underwriters' Laboratories is concerned with fire prevention, whether or not its cause is electrical. Fire-fighting equipment, extinguishers, and automatic sprinkler systems undergo tests as well as the automatic alarm systems used with them. Roofing is put to the flame on model roofs in front of a wind tunnel. In fact, almost everything that can blow up, burn up, or burn down comes under the purview of this busy organization.

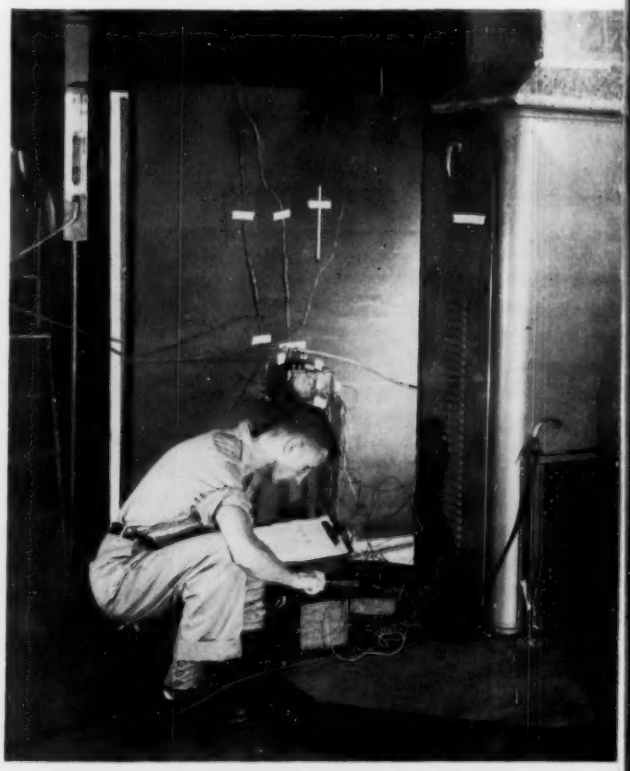
Most of the work has to do with things that are new, or at least modern. One phase, however, concerns a problem that is almost as old as man himself, and that is the problem of theft.

A bank vault is wired with a new burglar detection system by one group of engineers. Another group, using all the tools of the prowler's trade, tries to reach the vault without setting off the alarm. Bullet-proof glasses and steels are assaulted with a whole arsenal of modern weapons. Safes are attacked with nitroglycerine, torches, drills, and sledges.

The main station for carrying on these and the thousands of other testing and inspecting activities is on East Ohio Street in Chicago. In addition, there are now branches in New York City; Santa Clara, California; and Northbrook, Illinois. There are nearly 200 inspection offices in production centers from Honolulu, Hawaii, to London, England, and some 800 men and women now make up the staff.

Since 1917 the organization has been wholly self-supporting, maintaining itself entirely on the fees it receives for its service. Before 1917, it was supported by the association that sponsored its founding, the National Board of Fire Underwriters.

However, it must be remembered that there is no compulsion of any kind for any company to submit its products. Underwriters' Laboratories guarantees noth-



ing about a product bearing the famous UL label. The label merely means that the product has been tested by the laboratories and, in their independent judgment, meets adequate standards for safety.

But the UL label and the engineering talent behind it are so respected that 8,000 different firms find it worth their money to avail themselves of the UL services. Up to now, more than 300,000 products have been listed. Though the Underwriters' Laboratories assumes no obligation for products bearing its label, it does continue to keep an eye on those tested and approved. Periodic factory checks are made on both the materials and methods of manufacture. Labeled products are bought on the open market and retested. Deficiencies are detected and corrected or use of the UL label is denied.

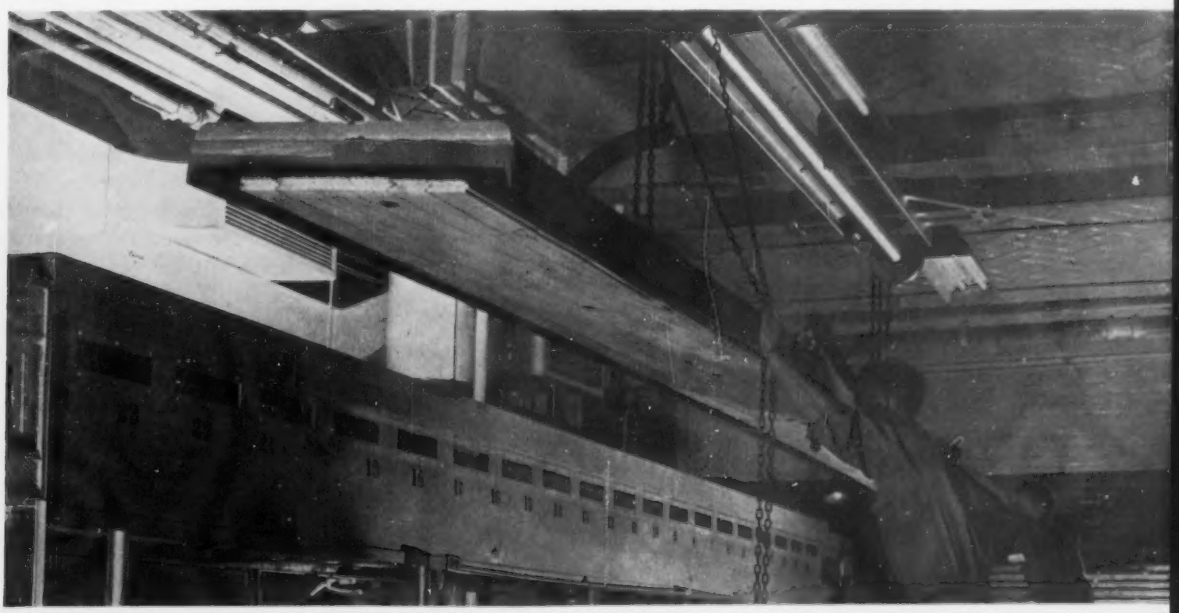
This highly successful enterprise exists "for service, not for profit," setting up safety requirements, testing, building devices for testing, improving the old, and meeting new problems brought on by new inventions and new hazards.

A final scene proves the point. Several engineers are distributed about a room. There is a sudden swish. For a moment, the men remain as positioned. Then tears begin to flow. In a second, weeping copiously, they are groping their way toward the door. In order that robberies may be foiled and that the eyes of innocent bystanders will not be harmed, the Underwriters' Laboratories tests tear gas in the laboratory to determine that it is non-injurious, but still effective.

Above—Construction materials are exposed not only to fire tests but, afterward, to powerful streams of water.

To the left—Another danger source—the oil-burning furnace—is tested at maximum temperature to see what effect it has on combustible bases.

Below—Fire hazard classification furnace determines how construction materials would react in an actual fire. The material serves as the roof of the furnace during the fire test. Test answers three questions: How fast a material burns over its surface; how much fuel it contributes to the fire; how much smoke it produces.



Photo—General Radio Co., Mass.

= NOISE

A New Standard on Measurement of Sound Insulation

by **Richard V. Waterhouse**

THE first American Standard for use by laboratories in measuring the transmission of airborne-sound through walls, doors, and floors has been approved by the American Standards Association.

The history of the standardization of this method of measurement is quite interesting. In some countries building codes contain requirements for sound insulation, and this has generally led to standardizing the method of measuring it. For example, Britain and Germany have such requirements in their building codes, and have standardized the method of measurement.[1] However, in the United States, building codes have traditionally included only requirements considered necessary to make buildings safe and sanitary, and do not include requirements for sound insulation. Therefore, building code requirements have not influenced the preparation of the new standard.

However, modern building techniques, with their emphasis on economy and light weight construction, have tended to produce buildings with poorer sound insulation, and as a result the need for a satisfactory standard method for measuring sound insulation has become apparent to many people. In addition to the present American Standard, an international standard on this topic is in preparation. The latter is not likely to be completed for at least a year.

There are two main laboratories in the United States that are regularly engaged in measuring the sound insulation of panels. One is the National Bureau of Standards[2] at Washington, D. C., and the other is the Riverbank Laboratory of the Armour Research Foundation at Geneva, Illinois. Both laboratories have been making such measurements for more than 30 years.

The principles of the method of measurement which has been standardized in the new American Standard were given in a paper[3] by E. Buckingham of the National Bureau of Standards in 1925. It is a tribute to his insight into the scientific bases of the measurement that no basic changes have been made in his original analysis. The international standard noted above makes use of the same method.

[1]For details, see *Handbook of Noise Control* (McGraw-Hill Book Company, New York, 1957), Chapter 40.

[2]The results of measurement of sound insulation at the National Bureau of Standards are published; see report BMS 144 (1955) and Supplement, sold by the Government Printing Office, Washington, D. C., price 40 cents and 5 cents, respectively.

[3]Scientific Papers, National Bureau of Standards **20**, 193 (1925).

Measurement of the sound insulation of partitions presents considerable technical difficulties, and it is hard to get results of fair accuracy. Different laboratories have often produced different results for similar test specimens, even when ostensibly using the same method of measurement. Thus from the technical point of view there has been need for a more rigorous standard than the practices followed heretofore, to reduce such inconsistencies.

Mr Waterhouse, National Bureau of Standards physicist, is a member of the subcommittee that prepared the new American Standard Practice for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Floors and Walls, Z24.19-1957. This is a subcommittee of the Sectional Committee on Acoustics, Vibration, and Mechanical Shock, Z24, sponsored by the Acoustical Society of America, and now replaced by Sectional Committee S2, Vibration and Mechanical Shock.

American Standard Z24.19-1957 can be obtained from the American Standards Association at 50 cents.

One difficulty is that the sound insulation afforded by a panel depends on the angle of incidence of the sound. This is somewhat analogous to the transmission of a beam of light through a plate of glass, which also varies with the angle of incidence. For this reason the standard requires the sound insulation to be measured when sound is incident uniformly from all angles on the panel surface, so that the most architecturally useful figure will be obtained.

Such a sound field is difficult to produce over the range of frequencies (125 to 4000 cycles per second) required, and large test chambers are needed. Also, the test panel must be quite big (e.g., 6 ft x 8 ft or more) to avoid error due to "drum-head" resonances; i.e., flexural resonances of the panel controlled by its size, which would not be in evidence for full size walls.

A final difficulty is that of obtaining a simple figure for the overall insulation of a panel. The sound insulation values are generally measured at 10 or more different frequencies over the important part (125-4000 cps) of the audible range, and for a given panel the values generally vary considerably over this range.

The problem then is to find a representative single figure for the sound insulation of the panel, based on the values at the different frequencies. The matter is complicated by the fact that the insulation the panel affords in practice depends on the spectrum of the noise present; also, the sensitivity of the ear varies with the frequency of the sound.

Different ways of arriving at a single figure for the sound insulation of a panel are presently used in different countries, and further effort is needed to secure agreement on, and if possible improvement of, the method of deriving this single figure.

In the American Standard the method used is to "average" the figures (expressed in decibels) at the various frequencies. This method was in general use many years ago, but has now been superseded in most countries. The chief objection to it is that it is an inaccurate index of the useful overall sound insulation of a panel. This is a weighty objection. On a big building project one cannot afford to make the mistake of using a more expensive and perhaps heavier construction, and then finding that a simpler construction has just as useful sound insulation in practice, in spite of having a lower "average."

This has been known to happen.[4] Evidently such an "average" is not very satisfactory and needs further attention.[5]

Another committee, E-6 of the American Society for Testing Materials, is considering further improvements in sound insulation measurement, and will be able to consider this point. Other points that Committee E-6 may take up, which are not included in the American Standard, are the measurement of impact sound insulation and the field measurement of insulation for both airborne and impact sound.

In general, however, the new standard represents a useful advance over the previous document, and should prove most valuable in improving the reliability of measurements.

GAILLARD SEMINARS

At the seminars on Industrial Standardization held by Dr John Gaillard in San Francisco, November, 1957, and New York, January, 1958, the following organizations were represented.

* American Standards Association
Automatic Electric Co
B-I-F Industries, Inc
E. W. Bliss Co
Chicago Bridge & Iron Co
* Dominion Engineering Works Ltd
Halliburton Oil Well Cementing Co
International General Electric Co
Eli Lilly and Co
* Lockheed Aircraft Corporation
Missile Systems Division
Lukens Steel Co
Mine Safety Appliances Co
Pennsylvania Transformer Co
A McGraw Electric Co Division
* Saco-Lowell Shops
Southern California Gas Co
* Union Carbide Nuclear Co
* Worthington Corp

Six of these organizations (marked by an asterisk) had been represented at one or more previous sessions.

The Gaillard Seminars, started in 1947, have been attended so far by 375 men representing 211 organizations in the United States and four other countries. The next session will be held in New York City from June 23 through 27, 1958. For details and advance registration, write to Dr John Gaillard, Box 273, Route 1, Briarcliff Manor, N. Y.

[4] P. H. Parkin and E. F. Stacey, Quieting of apartments and houses. *Noise Control* **1**, 40 (Jan. 1955)

[5] R. V. Waterhouse, On standard methods of measurement in architectural acoustics. *Journal of the Acoustical Society of America* **29**, 544 (May 1957)

Stronger Retail Support for L22 Standards Urged to Hike Profits by Cutting Returns

by **ALBERT J. PIGINI**

Retail buyers of rayon and acetate fabrics and products made of these fabrics will be interested in the views expressed in this article. It was published in the widely read newspaper of the retail industry, Daily News Record.*—Reprinted by permission of* Daily News Record, *February 6, 1958. Copyright, 1958, Fairchild Publications, Inc.*

GREATER utilization of L22 American Standard Minimum Requirements for Rayon and Acetate Fabrics would result in increased profits for the retailer through the cutting down of returns caused by unsatisfactory fabric performance.

This view is expressed by industry observers who are critical of the apathetic attitude of department stores regarding the slow adoption of L22 standards by the textile industry. The question is asked in various sections—Why doesn't the National Retail Merchants Association (formerly NRDGA) back L22 and what it means more wholeheartedly?

After all, it is reminded, NRDGA sponsored the committee which set up the standards under procedures outlined by the American Standards Association. Now that the standards have been drawn up, retailers should be advocating through NRMA, a widespread application of them in textile manufacturing and finishing, it is emphasized.

Estimates are that the number of returns to retailers runs from five to eight percent of sales. At least half of these returns could be eliminated through the use of L22, it is held. Since returns mean net loss, it is reminded, the profit picture at department stores would be appreciably altered upward as the performance factor in fabrics would be guaranteed by the adherence to L22 standards in manufacturing and processing.

The strongest support for fabric performance must come from the retailer as he has the closest contact with the consumer, some say.

It is the retailer who must guide the consumer not only in the choice of style and color which looks attractive, but also in the care of the garment, it is explained. Isn't it then to the retailer's advantage to know that the fabrics and garments which the consumer buys in all confidence will perform to her satisfaction? Proponents of wider acceptance of L22 declare that fashion and style will not be inhibited by guaranteeing performance through controlled textile manufacturing and processing.

They claim that if the customer is given the means of knowing how to care for her garments, she will avoid ruining them because of ignorance of washing instructions. It is unwise to leave the dissemination of such important information in the hands of salesclerks, it is stated, who in the process of selling might neglect to pass this data on to the consumer. The affixing of a label with instructions regarding washability, arrived at through scientific testing under L22, would prevent such an occurrence.

Opinion as to the type of label which should be attached to the garment is varied. Some hold that would be too expensive a proposition to attach a permanent label. They say it isn't necessary as the consumer knows when she buys the garment if she intends to have it dry cleaned, wash it by hand, or throw it into a washing machine. To such, a hang tag giving instructions for the care of the garment is sufficient.

On the other hand, others in the trade feel a permanent label is important, as the hang tag may become detached. It is possible that the consumer will not remember laundering instructions once the tag is lost, they say.

In a discussion of labeling, trade spokesmen are agreed that labeling based on fiber identification or content is of little value to the consumer. They maintain compulsory fiber identification will only mean an added cost for the industry.

Fiber content legislation without a provision for data regarding finishes, washability, and instructions for garment care is practically worthless, is one view.

Some opponents of fiber identification legislation feel that tradewide support for an extension of L22 standards to fabrics of other fibers is necessary. They feel that fiber producers might be anxious to take part in such a program as they would be protecting the good name of their products.

After all, some say, if a fiber is incorporated in a fabric which doesn't perform satisfactorily, the consumer will remain with a bad impression of the fiber rather than the fabric.

Indications are said to be that more fiber producers are considering the possibility of adopting some type of control program based on L22 standards.

A broader adoption of L22 as applied to finishing would also result in a stabilizing of prices, it is felt. Since L22 would be established as a base, finishers would not be able to cut prices below a certain level and still have fabrics pass tests. It would be a boon to the finisher in the long run, it is explained, as the number of claims coming back to the dyer would be cut tremendously.

No matter how good a fabric is, observers state, improper finishing will ruin it.

Reeves Bros. in its Bishopville finishing program has adopted L22 standards for a base and has had a favorable reaction from customers. Use of the standards leaves nothing to chance, it is said, and has tended to hold errors down to a minimum.

American Viscose Corp, through its Integrity Tag program which also makes use of L22, is issuing 2 million tags a month for garments and home furnishings items. A spokesman points out that manufacturers are showing increased interest in the program, realizing they can't tell how good a fabric is solely by feel or appearance. They are seeking a valid guide as to just how a fabric will perform, it is explained.

Courtaulds (Alabama) is utilizing L22 standards regarding colorfastness in its Coloray program for solution-dyed rayon.

August 27, 1859, in Titusville, Pennsylvania, "Colonel" Drake brought in the world's first prolific oil well and in effect laid the cornerstone for the modern American oil industry. In 1860 U.S. production of oil was ½ million barrels; by 1870 it was over 5 million barrels. Price per barrel — $18 when the Drake well came in — skidded to 10 cents in little over two years. It was a rough-and-tumble business then. Barrel sizes and capacities varied greatly and oil buying was as tricky as horse trading.

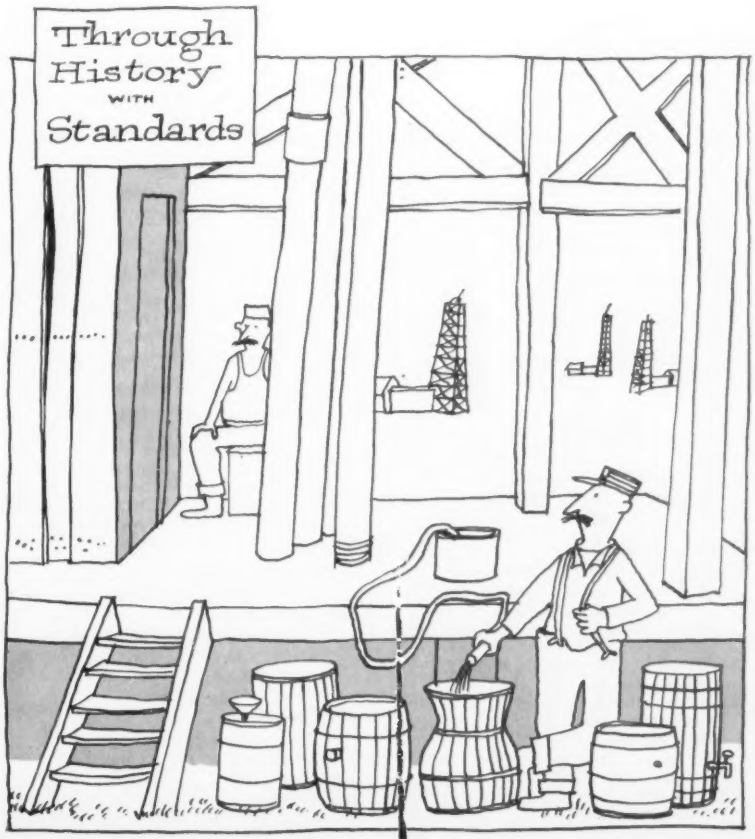
In 1866, some 30 producers in Oil Creek, Pennsylvania, decided that selling oil by the barrel of ill-defined dimensions didn't do the business any good. So they agreed to sell oil by the gallon, throwing in for good measure 2 gallons on each 40 sold. Thus the 42-gallon oil barrel was established. It was the first standard in the oil industry.

In 1928, the American Petroleum Institute published the first standard for crude oil measurements. Today, an estimated $20 to $25 million worth of crude oil per day is transferred every day on the basis of API standards.

API standards have been developed for the equipment and materials used by the oil industry and for the measurement, sampling, and testing of the industry's products. API standards provide specifications for dimension, composition, or performance in valves, tubular goods, derricks, belting, cements, wire rope, tanks, and drilling and production equipment. Interchangeability, particularly of threaded parts, is assured by a system of gage ownership and calibration that has taken effect all over the world. Nearly 600 American and over 300 foreign manufacturers have been authorized to apply the API monogram to equipment made to API specifications.

In the field of petroleum products, the American Society for Testing Materials has long been active in the standardization of specifications and test methods. Committee D-2 of the Society was organized in 1904 to deal with petroleum products and lubricants and has contributed over 300 standards which are approved and published by the Society. Eighty-five of these standard test methods have been approved as American Standards upon the recommendation of Sectional Committee Z11.

It has been estimated that the American oil industry saves several hundred million dollars each year on the purchase of equipment made to API standards. There are additional benefits that cannot be measured in monetary terms, such as increased operational efficiency, the case of reaching agreement between sellers and buyers of crude oil and its products, and the infrequency of misunderstanding and litigation because of the existence of standard terms, tests, procedures, etc. Thus the oil industry expression—"that's API"—is used to describe anything that fits, or works well, or otherwise comes out according to plan.



FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering copies of standards, please refer to the number following the title.

534 ACOUSTICS. SOUND. VIBRATIONS

France (AFNOR)

Audiometers NF S 31-001
Laboratory and on-the-spot measurement of air-transmitted sounds and impact noises NF S 31-002
Determination of acoustic absorption coefficient in reverberating room NF S 31-003

Germany (DNA)

Symbols used in acoustics DIN 1332

Japan (JISC)

Frequency std for musical instruments JIS Z 8702*
Sound level meters JIS C 1502
Noise survey meters JIS C 1503

621.83 GEARS, RACKS, ETC

Belgium (IBN)

Reference rack of spur gears NBN 445
Modules and pitch diameter of spur gears NBN 446
Indications to be given by the customer to the gear cutter in order to get the desired gears NBN 466

France (AFNOR)

Involute gear: pitch line and modules NF E 23-011

Germany (DNA)

Basic rules for gear designing DIN 3971

Italy (UNI)

Sprockets for roller chains UNI 3750

Spain (IRATRA)

Gears, nomenclature of wear and breakage of teeth UNE 18 040

661 CHEMICALS (FINE, HEAVY, ETC)

India (ISI)

Method of sampling and testing for activated carbon IS 877-1956
Specification for sodium nitrite, technical IS 879-1956
Triple superphosphate IS 1013
Carbon dioxide, industrial IS 307
Oxygen gas, industrial IS 309
Caustic soda, pure IS 1021

Japan (JISC)

30 stds for different chemical components JIS K 4137/4166

Mexico (DGN)

Ammonium, liquid DGN K 49-1957
Sulfur DGN K 50-1957
Ammonium, anhydrous DGN K 52-1957

Spain (IRATRA)

Solutions and reagents for quality test UNE 30 002
Hydrochloric acid UNE 30 054
Ethyl Alcohol of 95 percent UNE 30 062

United Kingdom (BSI)

Di-n-butyl phthalate BS 573:1957
Carbon tetrachloride BS 575:1957
Diethyl ether (technical) BS 579:1957
Tritolyl phosphate BS 1999:1957
Paraformaldehyde BS 2941:1957
Formaldehyde solution BS 2942:1957
o-Dichlorobenzene (grades A and B) BS 2943-4:1957

USSR

Ethyl bromide GOST 2658-56
Isooctane technical GOST 4095-56
Alpha-naftylamine GOST 8140-56
Aluminum oxide, active GOST 8136-56
Diaoctylphthalate GOST 8109-56
Sodium mono-sulfide GOST 596-56
Potassium cyanamide GOST 1780-56
Potassium xanthegenate GOST 7927-56
Ammonia liquor GOST 9-57
Muriatic acid, technical GOST 857-57
Ethyl alcohol, technical GOST 3314-57
Ethylene glycol ether GOST 8313-57

665.4/.5 MINERAL OILS. WAXES

Austria (ONA)

Abel-Pensky flashpoint test ÖNORM C 1121
Water content in mineral oil products, test of ÖNORM C 1130
2 stds sulphate ash of lubricating greases, test of ÖNORM C 1134/5
Conradson coke residue test ÖNORM C 1136
Distillation test of mineral oil products ÖNORM C 1160
Vaporization residue test ÖNORM C 1162

Czechoslovakia (CSN)

Mineral lubricants, determination of cinematic viscosity at low temperature CSN 65 6236

Germany (DNA)

Bituminous products, definition of DIN 55946

Mexico (DGN)

Liquid for cigarette lighters DGN R 39-1957

666 GLASS AND CERAMIC INDUSTRY

Belgium (IBN)

Bottle neck rim type 26 NBN 461

France (AFNOR)

Safety glass, terminology, classification, widths of NF B 32-500

Germany (DNA)

Test for temperature resistance of glass DIN 52304
Spring-closing bottle stoppers DIN 5097

Poland

Glass tubes for thermometers PN C-13100

Spain (IRATRA)

Laboratory glass, ground glass joints UNE 43 302

United Kingdom (BSI)

Methods for the analysis of glass. Part 2. Recommended procedure for the analysis of soda-boric oxide-alumina-silica glasses of high silica and boric oxide content BS 2649:Part 2:1957

669 METALLURGY

Australia (SAA)

Denture casting gold T 13-1956

Austria (ONA)

Acceptance and testing rules for cast and molded products ÖNORM M 3435

Canada (CSA)

Specification for pig lead HP 2-1957

Czechoslovakia (CSN)

Brass, methods of chemical analysis CSN 42 06 20
Color code for different grades of aluminum alloys CSN 42 14 07
Copper powder CSN 68 51 89
General survey of various kinds of rolled materials, plates, sheets, shapes, pipes, etc CSN 42 00 76
Color code for identification of different aluminum products CSN 42 14 06
26 stds for structural steels CSN series 41 00 01
5 stds for different grade ferrochromium CSN 42 22 40/4
11 stds for hard alloys CSN series 99 99
Method for sampling iron CSN 42 1210
3 stds for aluminum and aluminum alloy bars, rods and pipes CSN 42 7524, -7710, -14

France (AFNOR)

6 stds for colorimetric test of tin for copper, iron, bismuth, nickel, aluminum, and zinc contents NF A 06-533/8
Chemical analysis of steels and cast iron for volumetric manganese content NF A 06-303
Chemical analysis of steels and cast iron for volumetric phosphorus content NF A 06-305
Determination of arsenic in manganese ores NF A 06-109

Germany (DNA)

Spring sheet of special brass DIN 1777
Corrosion of metals, definitions, formulas and units DIN 50901
Testing of steel and steel castings comparison tables for Vicker-, Brinell- and Rockwell C and B- hardnesses DIN 50150
Determination of thickness of galvanic layers (spraying method) DIN 50951
Bending test of spring sheets DIN 50151
Aluminum and aluminum alloys, wires and bars for riveting DIN 59675

India (ISI)

Specification for tin ingot IS 26-1956
Specification for pig lead IS 27-1956
Specification for zinc IS 209-1956
2 stds for wrought aluminum and aluminum alloys, forgings and tubes IS 734,-738

Japan (JISC)

Aluminum alloy castings JIS H 5202-1955*
Secondary aluminum ingots JIS H 2103*
Pig lead JIS H 2105*
Corrosion resisting aluminum-alloy sheet and plate JIS H 4104*
Forgings of aluminum alloy JIS H 4131*
High strength aluminum alloy JIS H 4173*
3 stds for lead sheets and pipes JIS H 4301, 11/2*
General rules for chemical analysis and inspection of ferro-alloys JIS G 0302
16 stds for various ferro-alloys of general use JIS G 2301/2316
Forged steel products JIS G 3201
Carbon steel sheets JIS G 3301
Galvanized sheets JIS G 3302
Carbon steel plates and strips, cold rolled JIS G 3310

2 stds for carbon- and alloy steel tubes for structural purpose JIS G 3440/1
Tool steel, carbon JIS G 4401
High speed steel JIS G 4403
Alloy tool steel JIS G 4404
Stainless steel castings JIS G 5121
Heat resistant steel casting JIS G 5122
High manganese steel casting JIS G 5131
Refined aluminum JIS H 2111
Copper strip for detonator JIS H 3302
Brass strips JIS H 3321
4 stds for brass rod, free cutting, hot rolled, naval, high tension JIS H 3422/5
3 stds for copper-berylium alloy plate, sheet, wire and rods JIS H 3801/3
9 stds for high strength aluminum alloys JIS H series 41
Hard lead plates JIS H 4302
Hard lead pipes JIS H 4313
Recommended practice for aluminum alloy castings JIS H 9151

Mexico (DGN)

Lead sheets DGN B 85-1956

Poland

Determination of phosphorus content in iron ores PN H-04107
3 stds chemical analysis of ferroalloys PN H-04207/9
5 stds for chemical analysis of lead PN H-04867,-69/72
3 stds for classification of white and black soft iron PN H-83221/3
Carbon steel for chain manufacture PN H-84033
Carbon steel for spring washers PN H-92604
Carbon steel for horse shoes PN H-92605
4 stds for rolled carbon steel shapes PN H-series 93
Corrosion resisting steel rods PN H-93004
Hexagon rods of carbon and alloy steel, sizes PN H-93203
Carbon steel bands for manufacturing nuts PN H-93223
T-shapes of rolled carbon steel PN H-93406
Steel wire for needle manufacturing PN M-80044

Portugal (IGPAI)

Tension test of metals NP-105
Brinell hardness test of metals NP-106

Spain (IRATRA)

Drawn and forged shapes of copper-alloy "cuzin" UNE 37108
Hot-rolled bars of aluminum and aluminum alloys UNE 38042
Aluminum of first fusion UNE 38111
Cold-rolled aluminum and aluminum alloy squares UNE 38043

Switzerland (SNV)

Extra pure aluminum and its alloys, definition, chemical composition, mechanical and physical properties VSM 10843
2 stds for refined aluminum-, copper-, magnesium-alloys, chemical composition, mechanical and physical properties VSM 10852
Refined aluminum-zinc-magnesium-copper alloys VSM 10858
2 stds for seamless tubes of pure aluminum and aluminum alloys VSM 11882, -4
2 stds for pure aluminum and aluminum alloys sheets VSM 11886, -8
2 stds for pure aluminum and aluminum alloys bands and strips VSM 11890, -2

Union of South Africa (SABS)

Standard specification for printers' metal SABS 12-1956

United Kingdom (BSI)

Corrugated aluminum sheets for general purposes BS 2855:1957
Steel plates for use in the manufacture of galvanizing pots BS 2858:1957
Solid drawn copper alloy tubes for heat exchange equipment in the petroleum industry BS 1464:1957
Copper tubes to be buried underground BS 1386:1957
Copper and copper alloys—tubes BS 2871:1957
Methods for the analysis of aluminum and aluminum alloys. Iron (absorptiometric 1:10-phenanthroline method) BS 1728:Part 8:1957
Manganese (volumetric: arsenite/nitrite method) BS 1728:Part 9:1957
Manganese (absorptiometric method) BS 1728:Part 10:1957
Wrought aluminum for electrical purposes, drawn strip BS 2897:1957
Wrought aluminum and aluminum alloys for electrical purposes, bars and sections BS 2898:1957
Cold-reduced tinplate and cold-reduced blackplate BS 2920:1957

677 TEXTILE AND CORDAGE INDUSTRY

Australia (SAA)

Unproofed long line flax tarpaulin canvas L 3-1957

Denmark (DS)

5 stds for bleached and unbleached cretonne and twill for use in hospitals DS 71/5
Light kitchen cloths for use in hospitals DS 80
Cotton yarn DS 928

France (AFNOR)

Sifting fabric of natural silk and synthetic fibres NF G 37-001

Germany (DNA)

Waterproof testing of textiles DIN 53886
Determination of weight of textiles DIN 53854
Definition of terms used in chain weaving DIN 61050
Method of measuring fibre diameter DIN 53811
Weaver's beams of steel or light metal DIN 64533
Horsehair fabrics and hair lining, definition and composition of DIN 61610
Determination of thickness of textiles DIN 53855

India (ISI)

Method for determination of color fastness of textile materials to acid chlorination IS 967-1956
Method for determination of color fastness of textile materials to acid spotting IS 968-1956
Method for determination of color fastness of textile materials to cross-dyeing: wool IS 969-1956
Method for determination of color fastness of textile materials to degumming IS 970-1956
Method for determination of color fastness of textile materials to perspiration IS 971-1956
Method for determination of color fastness of textile materials to potting IS 972-1956
Method for determination of color fastness of textile materials to soda boiling IS 973-1956
Method for determination of color fastness of textile materials to steaming IS 974-1956
Method for determination of color fastness of textile materials to sublimation IS 975-1956
Method for determination of color fastness of textile materials to water spotting IS 976-1956
Method for determination of color fastness of textile materials to alkali spotting IS 977-1956
Method for determination of color fastness of textile materials to carbonizing with sulphuric acid IS 978-1956
Specification for handloom cotton lungies, striped or checked IS 750-1956
2 stds for handloom worsted bunting cloth, heavy and light IS 889/90
Handloom worsted shirting IS 891
5 stds for handloom woolen blankets IS 892/6
Coir fibre IS 898
3 stds for method for determination of color fastness of textile materials to mercerizing, storing and acid milling IS 979/81
Estimation of small quantities of copper, iron, manganese, chromium and zinc in proofed cotton fabrics IS 1039
Handloom cotton gada cloth, grey IS 1094
Handloom cotton mosquito netting, bleached or dyed IS 1097
Handloom cotton lining cloth, dyed IS 1099

Japan (JISC)

6 stds for different methods for testing color fastness of fabrics JIS K 4004/9
Wire ropes JIS G 3525

Mexico (DGN)

Short rayon fibres DGN A 31-1956
Threads of continuous filaments of acetate DGN A 32-1956
Threads of continuous filaments of rayon DGN A 33-1956
Acetate fibres, short DGN A 30-1956
Nomenclature, definitions and terminology of textiles DGN A 12-1957

Poland

11 stds for different tests of textiles PN P-series 04

Spain (IRATRA)

Equivalents of torsion coefficients UNE 40016
Textiles, weaving terminology and symbols UNE 40017
6 stds for different methods of testing dyed and printed fabrics for color fastness UNE 40026/31

Union of South Africa (SABS)

Standard specification for worsted flannel SABS 348-1956
Standard specification for stitching and stapling wire SABS 578-1956
Standard specification for worsted barathea SABS 661-1956
Standard specification for worsted battledress serge SABS 554-1956

United Kingdom (BSI)

Linen textiles for use by hospitals and local authorities BS 1781:1957
Weft pirns (taper fit) for direct spinning of cotton and spun rayon yarns BS 1675:1957
Tests for bow and skewness in woven fabric BS 2819:1957
Quantitative chemical analysis of mixtures of protein and non-protein fibres BS 2822:1957

681 PRECISION MECHANISM, INSTRUMENTS

Germany (DNA)

Nominal diameters of round wrist watch mechanisms DIN 8240
Wells for weighbridges platform DIN 1931
Computing machines, functional symbols for DIN 9754

Japan (JISC)

6 stds for different types of watches and clocks JIS B 7002/4-, 8-, 11-, 12-1955*

USSR

Precision dial gages for inside measurements GOST 868-57
Different types of pens for recording instruments GOST 3150-57
Interferometers GOST 8290-57
Pressure gages, different types GOST 8291-57

books....

ASTM Viscosity Tables for Kinematic Viscosity Conversions and Viscosity Index Calculations.
September, 1957. ASTM Special Technical Publication No. 43-B. 65 pp. 6 x 9. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. $2.00

The tables in this booklet provide means for viscosity conversions and for obtaining basic values for calculations of viscosity index.

With the adoption in 1953 of 1.0038 cs at 68 F as the standard value for the kinematic viscosity of water, recalibration of viscometers used for measuring kinematic viscosity was required. This resulted in a reduction of 0.318 percent in the kinematic viscosity of a given product. Saybolt viscometers are not calibrated with water and were not affected. Therefore, all conversion tables listing kinematic and Saybolt viscosity values required revision. In addition, as viscosity index can be calculated with both kinematic viscosity and Saybolt viscosity results, the basic values for calculating viscosity index from kinematic viscosity required revision.

The tables included are revisions of earlier tables and have been expanded and extended. They are based upon the following ASTM and American Standards:

- Conversion of Kinematic Viscosity to Saybolt Universal Viscosity, ASTM D 446-53; ASA Z11.46-1953
- Conversion of Kinematic Viscosity to Saybolt Furol Viscosity, ASTM D 666-57; ASA Z11.53-1957
- Calculating Viscosity Index, ASTM D 567-53; ASA Z11.45-1953

Graphical Design Procedure for Bolted Flange Connections (Lap Joints) Meeting ASME Code Requirements.
Manual Sheet M-1. 34 pp. Manufacturing Chemists' Association, 1625 Eye Street, N.W., Washington 6, D.C. $1.25

This design procedure, with necessary graphs, has been worked out for unfired pressure vessel flanges having diameters from 26 in. to 144 in. and for pressure commensurate with the selection of materials. It is adaptable to all practical materials for large loose ring-type flanges, making it possible to obtain the dimensions of the various components of a lap joint with minimum calculation and effort.

The data are based on the ASME Unfired Pressure Vessel Code. Developed by the Subcommittee on Unfired Pressure Vessels of the ASA Chemical Industry Advisory Board, the procedure is part of an over-all program of the subcommittee, which is working toward a complete design procedure.

Believing that the graphical design procedures can be used advantageously by engineering personnel of all firms associated with the design and specification of pressure vessels, the Manufacturing Chemists' Association, Inc, has published the subcommittee's compilation with the permission of ASA and CIAB.

WHAT IS YOUR QUESTION?

Some recommended practices make use of the technique of referring to certain nationally known codes rather than incorporating them in the writing. Do you believe this to be faulty practice?

It is not necessarily a faulty practice. When the code cited is a large document, as many codes are, it would be impractical to duplicate it. It is important, however, to cite the edition and date of the code and to stipulate the applicable sections unless the code as a whole is applicable.

Not all industry reissues national standards as individual company standards. A number of individual companies use reprints of national technical society standards, such as ASTM, for example. Would this not be appropriate for Government?

If the Government should use a technical society method without modification, it would be appropriate to employ reprints provided they were overprinted to show the title, number, and date of the Government method, specification, or standard.

—Reply by Dr A. T. McPherson to questions asked at the National Conference on Standards.

What action can a producer take when a contracting officer uses a specification that has been superseded by a new specification before date of bid?

If the producer is aware of the existence of superseding documents, a request for information should be addressed to the contracting officer to verify that it is intended to obtain material under the earlier issue of the specification. A record of this correspondence and of the reply should be obtained so that if subsequent difficulties develop, the record can be used to show that the new issue was not applicable at the time of bid.

It must be considered that under normal circumstances publication of fully coordinated documents in the military series requires from 40 to 60 days of printing time. Administrative time lag involved in going to print may consume up to 15 days. To this may be added the time required to distribute the published documents from the central receiving points in the military departments to contracting officers in the field and an additional time lag of up to 90 days may occur. For these reasons, industry, having participated in the new development, is very often aware of changes long before the contracting office is in-

formed. Hence, the need for bidders to take positive action and to retain a record thereof to avoid subsequent difficulties.

—Replies by J. J. Dunn to question asked at the National Conference on Standards.

Is any hardwood species acceptable for use as wood poles?

No hardwood species, domestic or foreign, is now used for poles in the United States. Chestnut was formerly used in the northeastern U.S. until this species was no longer available. Other species do not appear to exist in sufficient numbers, in the length, diameter, and strength suitable, to be economically important. Generally, the economic situation also makes the hardwoods more valuable for saw timber than for poles. The natural durability of all wood species has to be supplemented to warrant their use. "To date we know of no commercial process that can be used effectively to impregnate the hardwoods with either a water-borne or oil-borne preservative," says G. Q. Lumsden, chairman of A S A Sectional Committee O5, Wood Poles. "The southern pines, which make up the bulk of the poles produced in the U.S. today,—some 80 to 95 percent —grow rapidly, are readily treated, and are available in such quantity and at such a favorable price as to eliminate any serious competition from most hardwood species."

Where can we obtain an analysis showing the degree of water "hardness" in each major population center in the country; also, an analysis showing the relative electrical conductivity of the various minerals, acids, and salts which go to make up this "hardness."

Information obtained from the American Water Works Association shows that the U.S. Government publishes two bulletins under the general title Industrial Utility of Public Water Supplies, 1952. Volume 1 of this publication is titled *East of Mississippi River;* Volume 2 is *West of Mississippi River*. These volumes list the complete analyses for water by states and major population centers and also give the specific conductance in microohm at 20 C of all supplies.

Standards Outlook

by LEO B. MOORE

Mr Moore is Associate Professor of Industrial Management, Massachusetts Institute of Technology, where he teaches a full-term course in industrial standardization.

The Standards Engineer

Recently I asked a man who is in a top level management position of a medium-sized company what a standards engineer is. His reply, essentially, was that such a man is an engineer interested in standards—that is, he does his engineering in and through standards work. Standards, he went on to say, is the job of keeping the company in line with customer specifications, notably those of the government, by conforming to them either directly or through the company's own standards of material, performance, or test, which support the customer's specifications. Sometimes, he said, our own engineering must supply the specification for the customer, but these serve the same purpose as far as the standards engineer is concerned.

Although these sentences are a condensation of a lengthy conversation, the broad ideas are fairly presented. These ideas are important, not only for themselves but also in comparison with those of the standards engineers in the company. Several agreed that a standards engineer should be a technician with some engineering experience or background in the company, but with a considerable and lengthy knowledge of purchase specifications and procedures, particularly government specifications. These latter were especially highlighted as if they were the essential body of knowledge in standards. The reason given was that one had to be very familiar with these documents and their changes, in the form of notices, amendments, and supplements, in order to know their history and status for purposes of interpretation.

There is no question in my mind that government specifications should and do have an important influence on our industrial community, but some question might well be raised as to this emphasis on them in analyzing what is a standards engineer. This is particularly pertinent in connection with efforts designed to educate and train men for the standards field, both in institutions of learning and in company training programs.

It is an old and familiar principle of organization that a job or position should be spelled out in terms expressing and describing its duties, responsibilities, and accountabilities. Such a job or position description then serves as the basis for a man specification, in which the qualities and qualifications of a man suited to fill the position are delineated. Thus one is completely dependent upon and supports the other, but the job details come first. The concept that a man who knows much about government specifications is equipped to fill a standards engineering position is an organizational profanation.

In Section 9 of the *Handbook of Industrial Engineering and Management*, I have written that "the qualities of an effective standards engineer, based on what he has to do, indicate that he must be: (1) particularly strong in the ability to handle human relations problems, (2) a good engineer versed in the technical and productive problems of his company, and (3) an able administrator, capable of making competent business decisions." These qualities were arrived at because in my opinion a standards engineer must mix engineering with management problems and must find successful, useful answers to them by working with and through other people.

news briefs . . . . .

CMC Adm nistrative Committee

• The Administrative Committee of the American Standards Association's Company Member Conference met in Cleveland January 7 to make plans for the CMC's Spring Meeting. The group were guests of CMC member W. G. Waltermire in the conference room of the new plant of Lamson & Sessions Corporation. Detroit, Michigan, was selected as the place for the Spring Meeting; the time, April 29 and 30. A subcommittee is now working on the program. Purpose of the CMC is to give company members of the American Standards Association a voice in the program and work of ASA. Any company that is a member of ASA is welcome to have a representative on the Company Member Conference. Members of the CMC Administrative Committee present at the Cleveland meeting were (seated, left to right): D. F. Hollingsworth, E. I. du Pont de Nemours and Company; D. F. Engstrom, Cutler-Hammer, Inc; F. C. Ewert, Deere and Company; F. H. Bump, Norton Company; J. J. Welshman, Grinnell Corp; J. M. Goldsmith, Armco Steel Corp (standing, left to right): W. G. Waltermire, The Lamson and Sessions Company; E. P. Kron, Eastman Kodak Company; A. E. Heyson, General Electric Company; R. P. Trowbridge, Caterpillar Tractor Company; and H. G. Lamb, American Standards Association.

• The magazine *Materials in Design Engineering* will publish a series of six articles entitled "A Guide to Materials Standards and Specifications," beginning in the March 1958 issue. The articles will be authored by S. P. Kaidanovsky, consulting engineer and well-known standards authority. The first article will describe the nature of materials standards and specifications produced by Government agencies and organizations concerned with a wide range of materials. Subsequent articles will deal with organizations and standards on the following specific groups of materials: iron and steel, nonferrous metals, plastics and elastomers, other nonmetallics, and finishes. Included in each of the articles will be summary lists of and references to all important standards and specifications.

Materials in Design Engineering is published by Reinhold Publishing Corp, 430 Park Ave, New York 22, N. Y.

• A survey of the 48 states was recently completed by the American Society of Mechanical Engineers to determine how many of the states have safety requirements covering the operation of industrial power trucks, fork lifts, and similar equipment. The survey was made in connection with the work of Sectional Committee B56. Thirty-six of the states replied. Of these, eight are using the American Standard Safety Code for Industrial Power Trucks, B56.1-1955, either in whole or in part. Thirteen have special safety codes developed for their own use. Seventeen advise that they have not published any rules or standards for the operation of fork lift trucks and similar equipment.

• Revisions to the American Standard Safety Code for Elevators, Dumbwaiters, and Escalators, A17.1-1955, are now available in a separate pamphlet. The text of American Standard A17.1-1955, corrected in accordance with the new supplement A17.1a-1957, comprises a 1957 edition of the American Standard Safety Code for Elevators, A17.1-1957. Among important new provisions is one to prevent overloading automatic elevators. The revisions to the standard now provide for designing and installing automatic elevators to accommodate a 25 percent greater passenger load than had been the case previously. This is a margin of safety to provide for possible overcrowding of these unattended elevators.

A supplement containing the revisions, approved as American Standard A17.1a-1957, has been published by the American Society of Mechanical Engineers, and is now available at $1.00 per copy. Copies may be purchased from the American Standards Association.

• American Standards and IEC Recommendations were featured in a number of sessions during the Winter General Meeting of the American Institute of Electrical Engineers. The meeting was held February 2-7 at the Hotel Statler, New York.

Members of the subcommittee responsible for the American Standard for Automatic Null-Balancing Electrical Measuring Instruments, C39.4-1956, reviewed the reasoning on which the standard was based. A. R. Gatewood, American Bureau of Shipping, presented a paper on the IEC Publication 92, Recommendations for Electrical Installations in Ships. The National Electrical Code was discussed in a symposium on safety. A member of the USA delegation to the IEC meeting in Moscow in June 1957 discussed Electrical Engineering and Research in the USSR.

• The Council of the United States National Committee of the International Electrotechnical Commission held its first meeting February 6 in New York.

The Council, which will guide the USNC in its participation in IEC affairs, consists of representatives from the fields of communication, electrical engineering, electrical manufacturing, electrical power,

electronics, and mechanical engineering. R. C. Sogge, manager of standards, General Electric Company, and president of USNC, is the Council's chairman.

At its organizational meeting the group agreed that interest in the affairs of the USNC should be broadened to include additional support from U.S. organizations, so that views expressed by U.S. delegations to meetings of IEC will be truly representative of U.S. industry. They also agreed that representation to the international meetings should be sought from the highest appropriate management level so that management groups will become more cognizant of IEC activities.

• The tenth annual report of the Indian Standards Institution includes news concerning organization of the Institution's Structural and Metals Division Council and of its Electrotechnical Division Council. The Institution has two branch offices, one in Bombay and one in Calcutta. Its main office is in New Delhi. One of the most active programs being carried out by the Institution is concerned with the testing and certification of products. The report indicates that the Institution has offered an important service to Indian manufacturers by calling attention to products that do not meet relevant Indian standards. In one case, ISI advised the producers to improve their process of manufacture and assisted them in acquiring better

Typical ISI mark, consisting of letters ISI and number of Indian Standard used.

quality raw materials. The Government of India is cooperating closely with the Institution. Export of aluminum utensils which do not bear the ISI's Standard Mark has been banned in order to ensure the quality of aluminum utensils exported to foreign countries.

In addition to the two new divisions, ISI has divisions on engineering, building, textiles, chemicals, agricultural and food products, structural and metals, electrotechnical problems, certification marks, and on implementation of its program. The Institution is active in many of the technical committees of the International Organization for Standardization and the International Electrotechnical Commission. Since India is a member of the British Commonwealth of Nations, the Indian Standards Institution acted as host to the Third Commonwealth Standards Conference early in 1957.

• Technical Committee 28 on Petroleum Products of the International Organization for Standardization reports that during the past year it has been working on proposals concerned with terminology; methods for the determination of specific gravity; density; kinematic viscosity; flash point; tetraethyllead in hydrocarbon fuels; and physical constants of hydrocarbons.

• "Making a Profit on Every Bite" is the title of an interesting article in *Business Week* describing how Stouffer's chain of restaurants has made standardization pay. Stouffer's profit of $1.1-million for the year ended July 31, 1957, was its highest so far. Uniformity of taste and quality, and standardized menus are top reasons. "To make sure that a customer will get a Stouffer meal whether he eats in Cleveland, New York, or Detroit, the food preparation is standardized to the last ounce in size, to the last dash of salt in seasoning," the article says. "All this standardization and centralized control has a big added advantage: It cuts waste, ups profits."

The article appeared in *Business Week*, February 15, 1958.

• The need for standard specifications and methods of test for flexible barrier materials has led to the organization of a new technical committee by the American Society for Testing Materials. The committee met for the first time on December 12. The second committee in a new group set up by the Society to deal with materials for specific applications, this new committee is identified as F-2, Flexible Barrier Materials. These materials are being used in a variety of applications ranging from packaging through building construction to agricultural problems.

Scope of Committee F-2 is:

"The development of definitions of terms and nomenclature, methods of test, and specifications for flexible barriers, including basic and composite materials and their application, and the promotion of research in this field. Standards covered by other committees shall be used when applicable. Typical flexible barrier materials are treated papers and fabrics, plastic films, and metallic foils, used alone or in various combinations."

The next meeting of the committee is planned for some time in May. Officers of the committee are: Clifton Sutton, General Foods Corp, *chairman;* L. F. Swec, Polymer Chemicals Division, W. R. Grace & Co, *vice-chairman;* T. M. Hill, Aluminum Company of America, *general secretary*.

• Dr Comfort A. Adams, chairman of the group of 15 men who organized the American Standards Association (then the American Engineering Standards Committee), died February 21. Dr Adams was 89 years old.

He was a representative of the American Institute of Electrical Engineers at the time the AESC was organized in 1918, and was elected to serve as the new standards organization's first chairman (1918-1919).

At the time of his death, Dr Adams had become known as dean of American engineers. He had had a distinguished career. For 45 years he taught at Harvard University. He was Lawrence Professor of Engineering from 1914 until 1936, dean of the Harvard School of Engineering in 1919, and Gordon McKay Professor of Electrical Engineering in 1935-36.

From 1919 to 1921, he was chairman of the Division of Engineering of the National Research Council.

Dr Adams was founder and first president of the American Welding Society and a past president of the American Institute of Electrical Engineers. He was charter member of the American Society for the Promotion of Engineering Education and a Fellow of the American Society of Mechanical Engineers. He received the first Miller Memorial Medal of the American Welding Society in 1929, the Lamme Medal of the American Institute of Electrical Engineers in 1940, and the Edison Medal, top award of the AIEE in 1957.

AMERICAN STANDARDS UNDER WAY

Status as of February 19, 1958

Legend — *Standards Council* — Approval by Standards Council is final approval as American Standard; usually requires 4 weeks. *Board of Review*— Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks. *Standards Board* — Approves standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Note — Send check when ordering standards listed as published to avoid service charge for handling.

BUILDING AND CONSTRUCTION

In Standards Board

Fire Tests of Door Assemblies, Methods of, ASTM E 152-56T; ASA A2.2- (Revision of ASTM E 152-55T; NFPA 252; ASA A2.2-1956)
Sponsors: National Bureau of Standards; National Fire Protection Association; American Society for Testing Materials

Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units, Specifications for, ASTM C 126-57T; ASA A101.1- (Revision of ASTM C 126-55T; ASA A101.1-1956)
Sponsor: American Society for Testing Materials.

CHEMICAL INDUSTRY

In Board of Review

Common Name for the Pest Control Chemical 3-phenyl-1,1-dimethylurea (fenuron) K62.7-
Sponsor: U.S. Department of Agriculture

DRAWINGS, SYMBOLS, AND ABBREVIATIONS

American Standard Published

Letter Symbols for Heat and Thermodynamics, Y10.4-1957 (Revision of Z10.4-1943) $1.50
Sponsor: American Society of Mechanical Engineers

ELECTRIC AND ELECTRONIC

American Standards Published

Soft or Annealed Copper Wire, Specifications for, ASTM B 3-56; ASA C7.1-1957 (Revision of ASTM B 3-54T; ASA C7.8-1955) $0.30

Tinned Soft or Annealed Copper Wire for Electrical Purposes, Specifications for, ASTM B 33-56T; ASA C7.4-1957 (Revision of ASTM B 33-53T; ASA C7.4-1953) $0.30

Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft, Specifications for, ASTM B 8-56; ASA C7.8-1957 (Revision of ASTM B 8-53; ASA C7.8-1953) $0.30

Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes, Specifications for, ASTM B 189-56T; ASA C7.15-1957 (Revision of ASTM B 189-53T; ASA C7.15-1953) $0.30

Cored, Annular, Concentric-Lay-Stranded Copper Conductors, Specifications for, ASTM B 226-56; ASA C7.16-1957 (Revision of ASTM B 226-52; ASA C7.16-1953) $0.30

Concentric-Lay-Stranded Copper Covered Steel Conductors, Specifications for, ASTM B 228-56; ASA C7.18-1957 (Revision of ASTM B 228-52; ASA C7.18-1953) $0.30

Concentric-Lay-Stranded Copper and Copper Covered Steel Composite Conductors, Specifications for, ASTM B 229-56; ASA C7.19-1957 (Revision of ASTM B 229-52; ASA C7.19-1953) $0.30

Copper Bus Bar, Rod, and Shapes, Specifications for, ASTM B 187-55; ASA C7.25-1957 (Revision of ASTM B 187-52; ASA C7.25-1953) $0.30

Seamless Copper Bus Pipe and Tube, Specifications for, ASTM B 188-56; ASA C7.26-1957 (Revision of ASTM B 188-52; ASA C7.26-1953) $0.30

Determination of Cross-Sectional Area of Stranded Conductors, Method for, ASTM B 263-56T; ASA C7.29-1957 (Revision of ASTM B 263-53T; ASA C7.29-1953) $0.30

Three-Quarter Hard Aluminum Wire for Electrical Purposes, Specifications for, ASTM B 262-56; ASA C7.35-1957 (Revision of ASTM B 262-55; ASA C7.35-1956) $0.30

Tinned Hard-Drawn and Medium-Hard-Drawn Copper Wire for Electrical Purposes, Specifications for, ASTM B 246-56T; ASA C7.37-1957 $0.30

Silver-Coated Soft or Annealed Copper Wire, Specifications for, ASTM B 298-56T; ASA C7.38-1957 $0.30
Sponsor: American Society for Testing Materials

Laminated Tubes Used for Electrical Insulation, Methods of Testing, ASTM D 348-56; ASA C59.14-1958 (Revision of ASTM D 348-52; ASA C59.14-1954) $0.30

Laminated Round Rods Used for Electrical Insulation, Methods of Testing, ASTM D 349-56; ASA C59.15-1958 (Revision of ASTM D 349-52; ASA C59.15-1954) $0.30

Electrical Insulating Oils, Method for Sampling, ASTM D 923-56; ASA C59.21-1958 (Revision of ASTM D 923-49; ASA C59.21-1951) $0.30
Sponsor: American Society for Testing Materials

American Standards Approved

96 Inch (800 ma) T-12 Rapid Start Fluorescent Lamp, Dimensional and Electrical Characteristics of, C78.702-1958

72 Inch T-12 Rapid Start (Recessed Double Contact) Fluorescent Lamp, Dimensional and Electrical Characteristics of, C78.703-1958
Sponsor: Electrical Standards Board

Fluorescent Lamp Ballasts, Specification for, C82.1-1958 (Revision of C82.1-1956)
Sponsor: Electrical Standards Board

Piezoelectric Vibrator, Methods of Measurement and Definition of, C83.17-1958

Fixed Wire-Wound Power Resistors, Requirements for, C83.18-1958
Sponsor: Electronic Industries Association

In Standards Board

Soft Rectangular and Square Bare Copper Wire for Electrical Conductors, Specifications for, ASTM B 48-57; ASA C7.9- (Revision of ASTM B 48-55; ASA C7.9-1956)

Copper Covered Steel Wire, Specifications for, ASTM B 227-57; ASA C7.17- (Revision of ASTM B 227-52; ASA C7.17-1953)

Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn and Three-Quarter Hard-Drawn, Specifications for, ASTM B 231-57; ASA C7.21- (Revision of ASTM B 231-55; ASA C7.21-1956)

Concentric-Lay-Stranded Aluminum Conductors, Steel-Reinforced, Specifications for, ASTM B 232-57; ASA C7.22- (Revision of ASTM B 232-55T; ASA C7.22-1956)

Resistivity of Electrical Conductor Materials, Method of Test for, ASTM B 193-57; ASA C7.24- (Revision of ASTM B 193-49; ASA C7.24-1951)

Standard Nominal Diameters and Cross-Sectional Areas of AWG Sizes of Solid Round Wires Used as Electrical Conductors, Specifications for, ASTM B 258-57; ASA C7.36- (Revision of ASTM B 285-51T; ASA C7.36-1956)

Hookup Wire, Specifications for, ASTM B 286-57; ASA C7.39-

Aluminum Wire Communications Cable, Specifications for, ASTM B 314-57T; ASA C7.40-
Sponsor: American Society for Testing Materials

Metallic Coverings for Insulated Wire and Cable, Specifications for, C8.15- (Revision of C8.15-1942)
Sponsor: Electrical Standards Board

Apparatus Bushings (Used with Power Circuit Breakers and Outdoor Transformers), Dimensional and Electrical Characteristics of, C76.1a- (Supplement and partial revision of C76.1-1943)
Sponsor: American Institute of Electrical Engineers

Designation of Miniature Lamps, Method for the, C78.390-
Sponsor: Electrical Standards Board

Residential Wiring Handbook, C91.1-
Sponsor: Industry Committee on Interior Wiring Design

Withdrawal Being Considered

Apparatus Bushings (Used with Power Circuit Breakers and Outdoor Transformers), Electrical and Mechanical Characteristics of, C37.4a-1954
Sponsor: Electrical Standards Board

Miniature Incandescent Lamps, C78.140-1956
Sponsor: Electrical Standards Board

GAS-BURNING APPLIANCES

American Standard Published

Addenda (Z21.10.1a-1957) to American Standard Approval Requirements for Gas Water Heaters, Volume I, Z21.10.1-1956 $0.50
Sponsor: American Gas Association

MECHANICAL

American Standard Approved

Plow Bolts, B18.9-1958 (Revision of B18.9-1950)
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

In Board of Review

Markings for Grinding Wheels and Other Bonded Abrasives, B5.17- [Revision of B5.17-1949 (R1953)]
Sponsors: American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Tool Engineers

Mechanical Refrigeration Installations on Shipboard, Recommended Practice for, B59.1- (Revision of B59.1-1950)
Sponsor: American Society of Refrigerating Engineers

In Standards Board

Machine Pins, B5.20- (Revision of B5.20-1954)
Sponsors: American Society of Mechanical Engineers; National Machine Tool Builders' Association; Society of Automotive Engineers; Metal Cutting Tool Institute; American Society of Tool Engineers

Standards Submitted

Method of Evaluating Load Ratings, B3.11-
Sponsor: Mechanical Standards Board

Mounting Dimensions of Lubricating and Coolant Pumps for Machine Tools, B5.28- (Revision of B5.28-1952)
Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

MINING

In Board of Review

Construction and Maintenance of Rail Haulage Roads in Coal Mines, M7.3-
Sponsor: American Mining Congress

Reaffirmation Being Considered

Construction and Maintenance of Ladders and Stairs for Mines, M12.1-1946
Sponsor: American Mining Congress

Withdrawal Being Considered

Frogs, Switches and Turnouts for Coal Mine Tracks (Light-Rail Turnouts), M7.1-1933

Frogs, Switches and Turnouts for Coal Mine Tracks for 70-lb and 80-lb Rail, M7.2-1935
Sponsor: American Mining Congress

MISCELLANEOUS

In Standards Board

Guide for Quality Control, Z1.1-

Control Chart Method of Analyzing Data, Z1.2-

Control Chart Method of Controlling Quality During Production, Z1.3-
Sponsor: American Society for Quality Control

PETROLEUM PRODUCTS AND LUBRICANTS

American Standards Published

Flash and Fire Points by Cleveland Open Cup, Method of Test for, ASTM D 92-57; ASA Z11.6-1957 (Revision of ASTM D 92-56; ASA Z11.6-1956) $0.30

Definitions of Terms Relating to Petroleum, ASTM D 288-57; ASA Z11.28-1957 (Revision of ASTM D 288-53; ASA Z11.28-1953) $0.30

Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates, Tentative Method of Test for, ASTM D 1019-57T; ASA Z11.71-1957 (Revision of ASTM D 1019-56T; ASA Z11.71-1956) $0.30

60 Octane Number Iso-octane-Normal Heptane ASTM Knock Test Reference Fuel Blends by Infrared Spectrophotometry, Test for Analysis of, ASTM D 1095-54; ASA Z11.94-1957 $0.30

1,3-Butadiene in C_4 Hydrocarbon Mixtures by Ultraviolet Spectrophotometry, Test for, ASTM D 1096-54; ASA Z11.95-1957 $0.30

Density and Specific Gravity of Liquids by Bingham Pycnometer, Test for, ASTM D 1217-54; ASA Z11.96-1957 $0.30
Sponsor: American Society for Testing Materials

PHOTOGRAPHY

American Standard Published

Criteria for Classifying and Testing the Internal Synchronization of Front Shutters, PH3.18-1957 $0.35
Sponsor: Photographic Standards Board

PIPE AND FITTINGS

American Standard Published

Steel Pipe Flanges and Flanged Fittings, B16.5-1957 (Revision of B16.5-1953) $3.00
Sponsors: American Society of Mechanical Engineers; Mechanical Contractors Association of America; Manufacturers Standardization Society of the Valve and Fittings Industry

American Standards Approved

Brass Fittings for Flared Copper Tubes, B16.26-1958 (Revision of A40.2-1936)
Sponsor: American Society of Mechanical Engineers; Mechanical Contractors Association of America; Manufacturers Standardization Society of the Valve and Fittings Industry

Welded Wrought-Iron Pipe, Specifications for ASTM A 72-56T; ASA B36.2-1958 (Revision of ASTM A 72-55; ASA B36.2-1956)

Electric-Fusion Welded Steel Pipe for High Temperature Service, Specifications for, ASTM A 155-56T; ASA B36.11-1958 (Revision of ASTM A 155-55; ASA B36.11-1956)

Seamless Steel Boiler Tubes, Specifications for, ASTM A 83-56T; ASA B36.12-1958 (Revision of ASTM A 83-55T; ASA B36.12-1956)

Electric-Resistance-Welded Steel and Open-Hearth Iron Boiler Tubes, ASTM A 178-56T; ASA B36.13-1958 (Revision of ASTM A 178-55T; ASA B36.13-1956)

Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Use, ASTM A 120-54; ASA B36.20-1958 (Revision of ASTM A 120-47; ASA B36.20-1951)

Seamless Cold-Drawn Low-Carbon Steel Heat-Exchanger and Condenser Tubes, ASTM A 179-56T; ASA B36.28-1958 (Revision of ASTM A 179-55; ASA B36.28-1956)

Seamless Cold-Drawn Intermediate Alloy-Steel Heat-Exchanger and Condenser Tubes, ASTM A 199-56T; ASA B36.29-1958 (Revision of ASTM A 199-55; ASA B36.29-1956)

Electric-Resistance-Welded Steel Heat-Exchanger and Condenser Tubes, ASTM A 214-56T; ASA B36.32-1958 (Revision of ASTM A 214-55T; ASA B36.32-1956)
Sponsors: American Society of Mechanical Engineers; American Society for Testing Materials

In Standards Board

Standard Strength Perforated Clay Pipe, Specifications for, ASTM C 211-57T; ASA A106.1- (Revision of ASTM C 211-50; ASA A106.1-1954)

Standard Strength Clay Sewer Pipe, Specifications for, ASTM C 13-57T; ASA A106.3- (Revision of ASTM C 13-54; ASA A106.3-1955)

Standard Strength Ceramic Glazed Clay Sewer Pipe, Specifications for, ASTM C 261-57T; ASA A106.4- (Revision of ASTM C 261-54; ASA A106.4-1955)
Sponsor: American Society for Testing Materials

Brass and Bronze Screwed Fittings, 125 lb, B16.15- (Revision of B16.15-1947)
Sponsors: American Society of Mechanical Engineers; Mechanical Contractors Association of America; Manufacturers Standardization Society of the Valve and Fittings Industry

SAFETY

American Standards Published

Safety Code for Elevators, Dumbwaiters, and Escalators, A17.1a-1957 (Revision of and Supplement to A17.1-1955) $1.00
Sponsors: American Institute of Architects; American Society of Mechanical Engineers; National Bureau of Standards

Safety Code for Conveyors, Cableways, and Related Equipment, B20.1-1957 (Revision of B20.1-1947) $1.50
Sponsors: American Society of Mechanical Engineers; Accident Prevention Dept of the Association of Casualty and Surety Companies

WOOD AND WOOD PRESERVATIVES

Reaffirmation Requested

Static Tests of Timbers in Structural Sizes, ASTM D 198-27; ASA 04b-1927
Sponsor: American Society for Testing Materials

. . . meeting dates, 1958

International Organization for Standardization (ISO) — Triennial meeting: General Assembly, Council, and 15 technical committees, Harrogate, England, June 9-21. U. S. member: American Standards Association, 70 East 45 Street, New York 17, N. Y.

International Electro-Technical Commission (IEC)—Annual meeting, Stockholm, Sweden, July 1-16. Various technical meetings will be held in Vasteras, Ludvika, and in Copenhagen, Denmark. Delegates will be guests of the national standards body of Sweden (Sveriges Standardiseringskommission). Secretary, United States National Committee of IEC, c/o American Standards Association, 70 East 45 Street, New York 17, N. Y.

Ninth National Conference on Standards, Hotel Roosevelt, New York, November 18, 19, and 20. Conference sponsored annually by the American Standards Association, 70 East 45 Street, New York 17, N. Y.

WHAT'S NEW ON AMERICAN STANDARDS PROJECTS

Pallets, MH 1–

Sponsors: American Society of Mechanical Engineers; Society of Industrial Packaging and Materials Handling Engineers

At its December 17 meeting, the committee requested ASA to become a participating member of ISO Technical Committee 51, Pallets for the Unit Load Method of Materials Handling.

This ISO committee now has before it a proposal that a standard size pallet be adopted for use in an inter-European pallet pool to meet the needs of the coming European Common Market. The proposal was presented to Technical Committee 51 by the European Packaging Federation. A committee of the Federation is working on a modulus system for packaging dimensions. Since it is important in planning the dimensions to be used in packaging to know what size pallet will be recommended as standard, the Federation has asked ISO/TC 51 for its opinion. The question seems to be between pallets measuring 32 x 48 in. (800 x 1200 mm) and those measuring 40 x 48 in. (1000 x 1200 mm).

Both the 32 x 48 and 40 x 48 in. pallets are among those sizes that have been selected as standard in the proposed American Standard now nearing completion in the MH1 Sectional Committee. In all, there are 11 sizes being proposed by MH1 for approval as American Standard. Eight of these sizes are for rectangular pallets and three are square pallets.

Now that the sectional committee has just about completed the proposal the members are directing their attention to the standardization of terminology in the pallet field. They have already shown some progress in developing such a standard.

Bioacoustics, S3–

Sponsor: Acoustical Society of America

Development of standards, specifications, and methods of test for acoustics as related to psychological and physiological problems is going forward actively through Sectional Committee S3. This committee, set up following reorganization of the former Z24 Committee on Acoustics, Vibration, and Mechanical Shock, held its first meeting in October, 1957. It is working under the chairmanship of Dr W. D. Neff, Professor of Psychology, University of Chicago. Vice-chairman is Dr Henning E. von Gierke, Wright Air Development Center, U.S. Department of the Air Force.

Official scope of the committee is: "Standards, specifications, methods of measurement and test, and terminology in the fields of psychological and physiological acoustics, including aspects of general acoustics which pertain to biological safety, tolerance, and comfort."

Dr Neff (he has his Ph.D. in psychology from the University of Rochester, 1940), is well qualified to head the work of the committee. He is chairman of the Armed Forces National Research Council Committee on Hearing and Bioacoustics, a member of the Advisory Committee on Psychophysiology, Office of the Surgeon General, Department of the Army; and is the American Psychological Association representative to the National Research Council. He is also a member of the Committee on Psychological and Physiological Acoustics of the Acoustical Society of America. He is concerned with research on the neurophysiological mechanisms of hearing.

During the war, Dr Neff was first supervisor of training for the Columbia University Division of War Research, USN Underwater Sound Laboratory, New London, Connecticut, and then was director of the Submarine Training Section, Columbia University Division of War Research at the Submarine Base in New London.

Dr von Gierke, a native of Germany, received the degree, Diplom Ingenieur, at the Technical University of Karlsruhe in 1943, and the degree Doctor Ingenieur in 1944. From 1943 to 1947 he was research assistant at the Institute for Theoretical Electrical Engineering and Communications Technique at the Technical University of Karlsruhe. Here he worked on projects in the fields of acoustics and applied physics. From 1946 to 1947 he served as lecturer in high frequency communications techniques at Karlsruhe.

Since 1947 Dr von Gierke has been engaged in research in the fields of physical and physiological acoustics, aviation acoustics, and biophysics for the United States Air Force. He is now chief of the Bioacoustics Branch, Aero Medical Laboratory, Wright Air Development Center. His branch is responsible for research in all areas related to the Air Force Noise and Vibration Control program. At present Dr von Gierke is serving also as a member of several working groups of the Armed Forces National Research Council Committee on Hearing and Bioacoustics and of several writing groups of the acoustics committees of the American Standards Association.

Dr von Gierke is author of many technical papers in physical and physiological acoustics and of the chapters "Aircraft Noise" and "Aircraft Noise Control" in the *Handbook of Noise Control* published by McGraw-Hill Company, 1957.

Work under the jurisdiction of Sectional Committee S3 includes the American Standard Method for Measurement of the Real-Ear Attenuation of Ear Protectors at Threshold, Z24.22-1957, which is now being published. The committee is now voting on a proposed standard method for measurement of monosyllabic word intelligibility, and is working on a revision of the American Standard Acoustical Terminology, Z24.1-1951. Writing groups are working on draft standards for articulation tests; testing of acoustic properties of ear protectors; audiometric test booths; loudness computation; and methods of calculating speech intelligibility. They are also working on revisions of a number of approved American Stand-

ards. These include American Standards Z24.14-1953, Hearing Aids; Z24.5-1951, Z24.12-1952, and Z24.13-1953 on audiometers; and Z24.9-1949, Method for the Coupler Calibration of Earphones.

Exploratory work is going on to determine whether standards are needed to provide criteria for community noise and for room noise, as well as psychological tests for loudspeakers.

The next meeting of Sectional Committee S3 will be held during the Spring meeting May 7 through May 9, 1958, of the Acoustical Society of America in Washington, D. C.

Ball and Roller Bearings, B3—
Sponsor: Mechanical Standards Board

Particularly useful to bearings users will be the new proposed American Standard Method of Evaluating Load Ratings, B3.11, which will enable an engineer to select the proper bearing for a machine operating under a given load and provide him with a means for determining the life expectancy of the bearing. Based on a formula developed by the Anti-Friction Bearing Manufacturers Association, the standard has been in development for over ten years.

It has been approved by its sponsor for submittal to the Miscellaneous Standards Board.

Originally, the question of whether the subject of load ratings should be included in the scope of Project B3 was debated, but the ASA committee voted to undertake to develop the standard mainly because of the users' need for it. Work on the same subject was also planned for study in ISO project ISO/TC 4, Ball and Roller Bearings. The ISO committee has also completed work on two recommendations; one is now before the ISO member-bodies for approval —the other will be submitted shortly.

The National Bureau of Standards acted as an impartial analyst in a disagreement which developed in the committee as to the exact value of certain mathematical factors to be used in the proposed formula for load ratings. The determination of the value of the factors was based on empirical data gathered by the various manufacturers through actual testing of the life of bearings under different loads. To resolve the controversy, the proponents of the opposing views agreed to send all their data to the Bureau for an impartial statistical analysis.

The cost of the study was borne by the manufacturers. On the basis of the NBS findings, the formulas originally submitted were modified where necessary and completion of the proposed standard followed.

The ISO work and the ASA work on load ratings have been based on the same theory. This has led to almost complete agreement between the two—the difference being that the proposed American Standard distinguishes between certain types of bearings in the selection of one of the factors whereas the ISO proposal bases its factor on the average of several types. The ISO working group split the subject matter into two sections — one on static testing and the other on dynamic testing. The proposal on static load ratings has been circulated to ISO member-bodies; the proposal on dynamic testing is out to letter ballot of the parent committee, ISO/TC 4.

Chairman of the ASA subcommittee which developed the standard is Gunnar Palmgren, vice-president of Engineering & Research of SKF Industries, Inc. He was also the U.S. delegate to the ISO/TC 4 deliberations on the subject and worked under the instructions of Committee B3 in the international discussions.

Next meeting of ISO/TC 4 and its subcommittees will be held in Naples, Italy. Delegates from the

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Your Nominations Are Invited

for the Howard Coonley Medal

for the Standards Medal

YOU are invited to send to the American Standards Association your nominations for the 1958 recipients of the Howard Coonley Medal and the Standards Medal. Nominations should be in the hands of the Managing Director of the Association before June 30, 1958.

The Howard Coonley Medal is awarded each year to an executive who has rendered a great service in advancing the national economy through voluntary standardization. Recipients have been The Honorable Herbert Hoover, Howard Coonley, William Batt, Senator Ralph E. Flanders, Thomas D. Jolly, Dr Harold S. Osborne, Frederick S. Blackall, Jr, and Roger E. Gay.

The Standards Medal is awarded to an individual who has shown leadership in the development and application of voluntary standards. It has been awarded to such well-known leaders in standardization as Frank O. Hoagland, Perry L. Houser, the late Dr P. G. Agnew, Dr John Gaillard, James G. Morrow, the late Charles Rufus Harte, and John R. Townsend.

Nominations should be submitted in quardruplicate on plain paper without indication as to the source of the nomination. Each nomination should be accompanied by a letter of transmittal.

In order to provide complete and comparable data, forms can be obtained from ASA for filing nominations.

United States will be: Gunnar Palmgren, SKF; H. O. Smith, secretary-manager, AFBMA; H. D. Stover, Timken; J. M. Bryant, Link-Belt; T. E. Rounds, Barden Corporation; and two observers from the Timken Company. J. W. McNair, technical director of ASA, will also be present as an observer. The meeting will be held the end of May and early June.

All American Standards under the jurisdiction of Sectional Committee B3 have been referred back to the subcommittees concerned, to determine whether the standards are up to date and should be reaffirmed or whether they should be revised.

Eight subcommittees are active: I, Nominal dimensions and tolerances; II, Limiting dimensions for housing and shafts; III, Terminology and definitions; V, Packaging of anti-friction bearings; VI, Balls for use in anti-friction bearings; VII, Load ratings; VIII, Instrument bearings; IX, Tapered roller bearings.

Subcommittee IV on international standardization has been discharged. Each subcommittee now handles not only the domestic work but the international phases of its particular problems as well.

Subcommittee I has reviewed the American Standard Tolerances for Ball and Roller Bearings, B3.5-1951, with ISO recommendations for a new set of tolerances for ball bearings in mind. However, the subcommittee found that interested groups in the USA were not able to accept the proposed new tolerances. The subcommittee decided, therefore, that the ABEC and RBEC system of tolerances given in the 1951 edition of the American Standard should be continued in use.

Insulation Strengths

A general conference of manufacturers and users has asked the American Standards Association to set up a national committee to coordinate the work of all power apparatus groups who are developing requirements for insulation strengths. The conference was held February 13.

The chief reason for desiring American Standards was summed up by L. D. Price, manager, Engineering and Safety Departments of National Association of Electrical Manufacturers, which requested the conference:

"The experience of the U. S. National Committee in certain activities of the International Electrotechnical Commission on withstand levels has brought out the need for a fuller understanding of the basis for American practice so that the American point of view can be expressed as a coordinated viewpoint in IEC matters," he said.

Mr Price pointed out that American Standards developed under the sectional committee method would reflect a truly unified United States viewpoint which could be presented for inclusion in these international standards.

NEMA, he said, requested the conference to be held by ASA because, "we have become increasingly aware of the need for integrated activity having broad participation by all interested groups. For example, there is need for user participation to assure that proper weight is given to considerations of application and usage. We believe that an ASA committee is needed to avoid possible duplication of standardization efforts by NEMA, AIEE, and others. Under the established formal ASA procedures, the interests of all apparatus groups would be coordinated, and, in turn, the values adopted would be appropriately reflected in the various American Standards on apparatus."

The conference agreed to recommend to ASA that a sectional committee, representing all interested groups, be set up for insulation coordination. The committee would have the following scope:

1. To study problems of coordination of insulation of the different types of apparatus used in electrical systems.
2. To develop minimum values for the external dielectric requirements of outdoor apparatus for power transmission and distribution, as follows: (*a*) Wet and dry low frequency withstand test levels; (*b*) Impulse withstand test levels; (*c*) Altitude correction factors; (*d*) Minimum creepage distance on insulation exposed to the weather.
3. To compile data and to prepare guiding principles for the use of other ASA committees with respect to requirements for insulation strengths of various types of apparatus.
4. To assure the coordination of American and international standards.

Various conferees spoke highly of the work being carried on in this field by the Triple Joint Committee on Insulation Coordination (American Institute of Electrical Engineers, Edison Electric Institute, and National Electrical Manufacturers Association). The conference recommended that organizations appointing technical representatives to the proposed committee take advantage of the experienced membership of the Triple Joint Committee.

It also recommended that AIEE and NEMA serve as joint sponsors of the committee.

Diamond Abrasives, B74—

Sponsors: Grinding Wheel Institute; Industrial Diamond Association

Some months ago, initiation of a project on Diamond Abrasives was approved and organization of a sectional committee authorized. The project was designated B74. The sponsors of Project B74 now announce that they are working on organization of the sectional committee and expect that an organization meeting will be held soon. One of the sponsors, the Grinding Wheel Institute, has developed a proposal on the sizes of diamond wheels. This proposal will be submitted to the committee when it is organized.

NOTE: Through some error, the news item on the B74 project published on page 59 of the February issue of THE MAGAZINE OF STANDARDS listed the sponsors of Sectional Committee B72, Plastic Pipe, instead of the sponsors of B74. The correct sponsors for project B74 are given above.

Plastic Pipe, B72—

Sponsors: The American Society of Mechanical Engineers; Society of the Plastics Industry; American Society for Testing Materials

When initiation of a project on plastic pipe was first considered it was expected that work on materials specifications would not be undertaken. In view of this, the American Society for Testing Materials gave its opinion that it would not be interested in sponsorship of the project. At the organization meeting of the committee, however, it was decided that some reference to materials would be made in the standards. For this reason, the American Society for Testing Materials requested, and has been granted sponsorship, with the ASME and SPI, for project B72.

Drawing and Drafting Practice, Y14—
Sponsor: The American Society of Mechanical Engineers; American Society of Engineering Education

The new American Standards for drawings will be discussed in a two-day seminar April 29 and 30, conducted by the General Engineering Department of the University of Illinois. General chairman will be R. P. Hoelscher, chairman of the ASA Y14 sectional committee on drawings and drafting practice. The General Engineering Department is holding the seminar in cooperation with the American Standards Association, the Central Illinois Sections of the American Society of Mechanical Engineers and the Society of Automotive Engineers, and the Illinois Society of Professional Engineers.

Among the speakers will be S. H. Watson, Radio Corporation of America; Frederick Jantz, General Motors Corporation; T. J. O'Connor, Bell Telephone Laboratories; George Noble, Dominion Engineering Company, Montreal, Canada; P. G. Belitsos, General Electric Company; and Stuart Miller, U. S. Department of Defense.

Among the subjects discussed will be graphic illustration in sales, service, and production; true position dimensioning; tolerancing of form; maximum material concept applied to tolerancing of form and position; and proposed symbols for tolerancing of form and position.

Dean W. L. Everitt, College of Engineering, University of Illinois, will welcome the group at a luncheon April 29; and Cyril Ainsworth, deputy managing director of ASA, will describe the functions and services of the American Standards Association at the luncheon April 30.

At the social hour and banquet April 29, Dr Frank Beach, Professor of Marketing, University of Illinois, will speak on "Shoot for the Moon."

For further information write Robert K. Newton, Supervisor of Engineering Extension, 725 S. Wright, Champaign, Illinois.

Plan to Attend
Company Member Conference
Spring Meeting
Detroit, Michigan
April 29, 30

Mr Ainsworth has served for many years as Technical Director of the American Standards Association. He is now Deputy Managing Director and Assistant Secretary.

DINNSA

(Does Industry Need a National Standards Association?)

by **Cyril Ainsworth**

When DINNSA was published in 1932, the American Standards Association was only 14 years old. This was hardly long enough for it to become thoroughly established and accepted as the national clearinghouse for standards by the hundreds of national organizations engaged in standardization work and thousands of companies that need standards. One of the questions frequently presented to ASA at that time and still in the minds of many is:

> Assuming the need of a clearinghouse like the American Standards Association, will it in fact actually receive the recognition and cooperation necessary to do the job successfully? (Hundreds of associations doing standardization work have pride in their own achievements and standing.)

The slow but steady progress of ASA in its early years was made in the face of a thousand and one obstacles, chiefly arising from jurisdictional and procedural misunderstandings and the pride of many associations in their own achievements and standing in standardization work. These misunderstandings were not pushed to one side by ASA. They were carefully reviewed. Numerous revisions to ASA's By-Laws and Procedure have been made over the years in order to remove misunderstandings. Comparatively speaking, they now no longer exist.

ASA started with five technical societies as founding members. They were soon joined by three departments of the Federal Government who were accorded status as founding members. ASA continued to operate through that limited membership for several years. It now has 65 member-bodies (national trade associations and technical societies that operate ASA) and 52 organizations having associate member status (national trade associations and technical societies that may attend all Standards Council meetings with privileges of the floor but no vote). In addition, 2028 companies have become affiliated as company members.

The organizations doing standardization work have seen fit to bring 1700 standards to ASA for approval as American Standard. Most of these standards have been revised at least once and many several times.

Many standards brought to ASA for approval have been developed by national committees organized through the use of ASA machinery by national organizations that have agreed to cooperate in the development of the standards. Some 600 organizations with a representation of nearly 10,000 individuals are cooperating in the work of 230 such committees. The time, effort, and expense put into an operation of this magnitude by these national groups and by the individuals and companies in their membership has been permitted only because ASA operations have been found satisfactory and, in fact, indispensable. The validation which standards receive through ASA approval as American Standard, having the highest possible recognition through the integrating, coordinating, and approval processes of ASA, is considered sufficiently valuable by the hundreds of national groups concerned with standardization to support ASA in its work as the national clearinghouse for standards in the USA.

General view of Stenographic Department of the Royal Typewriter Co., 2 Park Ave., N.Y.C.

Photo By Ewing Galloway, N. Y.

. . . is your office up to Standard?

ARE you buying standard binders? American Standard Ring, Memo, and Post Binder Sheet Sizes and Ring and Post Data, ASA X2.4.3-1956 (NOMA N4.3-1954) gives data on sheet sizes and rings and posts for binders most widely used.

What is a "posture" chair? American Standard Definition of a Posture Chair, ASA X2.1.4-1954, outlines the minimum requirements that make an office chair a "posture" chair.

What are the standard paper sizes? American Standard Basic Sheet Sizes and Standard Stock Sizes for Bond Papers and Index Bristols, ASA X2.2.1-1955 (NOMA N2.1-1955) helps you select sizes normally available.

Do your girls complain of shock? American Standard Maximum Electrical Leakage of Dictating Machines, ASA X2.5.17-1954, gives information on electrical shock.

Is your adding machine paper up to standard? American Standard Noncarbonized, Single-Ply Adding Machine Paper Rolls, ASA X2.4.2-1954, specifies paper substance and quality, thickness, finish, color, brightness, opacity, tearing and bursting strength, roll widths, feet per roll, diameter of rolls.

Are your desks and tables standard? American Standard Dimensions of Desks and Tables for General Office Use, ASA X2.1.1-1951, offers a range of over-all dimensions to permit uniformity in arrangement while allowing variations for functional requirements.

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